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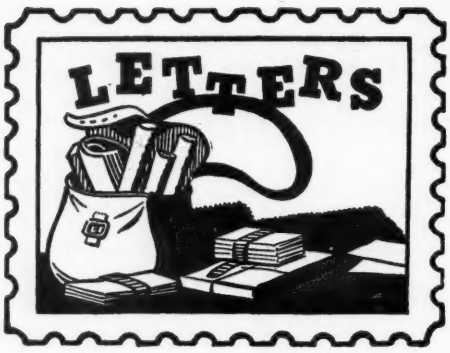


The Four-Year Course

Sirs:

It is with interest that the writer refers readers to a letter in THIS JOURNAL (September, 1954) by Anne Fautt relative to the merits of the five-year course in Pharmacy....

It is with regret that with all the space and propaganda given in our journals of Pharmacy as to the merits of the five-year course in Pharmacy, we see very few comments written in the various journals against the five-year course. I have talked with hundreds of pharmacists in all phases of pharmaceutical activity and very few were in favor of the proposed five-year course in Pharmacy....

Retail Pharmacy has a critical shortage of new applicants whose interest lies in the commercial retail field. It is retail Pharmacy which actually supports all phases of pharmaceutical activity, and our educators have somehow lost this basic fact in their proposal for an extended five-year course in Pharmacy.

The public interest cannot be better served by a five-year course in Pharmacy..... Pharmacists who took the three-year course in Pharmacy did not have any difficulty in mastering the subjects required in Pharmacy. As practicing pharmacists today they are just as proficient and serve the public interest as well as, if not better than, other allied health professions....

The real practice of Pharmacy and the ability to become a successful retail pharmacist comes to the student and graduate of a Pharmacy school only when he or she starts the period of internship which is now mandatory.

This writer sincerely believes that the present four-year course is more than adequate....

Paterson, N. J. MARTIN GOLDSTEIN, Ph.G.

Repeal of D-H

Sirs:

This letter is actuated by the fact that you were a strong opponent of the D-H bill. It is further prompted [by] an address by the president of a local pharmaceutical association, wherein... he stated, "...we all violate the law sometime during the course of business."

This is sad...but true. What is happening today in the retail drug field is reminiscent of the prohibition era....

In view of the recent decision by Judge Barnes and [because] the budget of FDA was so severely cut—making the D-H bill practically unenforceable—is it not the opportune time for your organization to renew the fight for its repeal and leave Pharmacy to competent authority—the various state boards of pharmacy—and thus relieve pharmacists of the stigma of potential criminals?

I believe contact with Senator Humphrey would convince him that the law is rather loose and has not worked as intended. Perhaps he would initiate the move for its repeal or at least write a bill that will give some authority and ethical standing to the pharmacist in medical circles.

HAL SIMMONDS

Honor and Pleasure

Sirs:

It is an honor and pleasure to be a member of the AMERICAN PHARMACEUTICAL ASSOCIATION. I am indeed benefited by the JOURNALS.

Chapel Hill, N. C. JOYCE E. NELSON

Worth the Cost

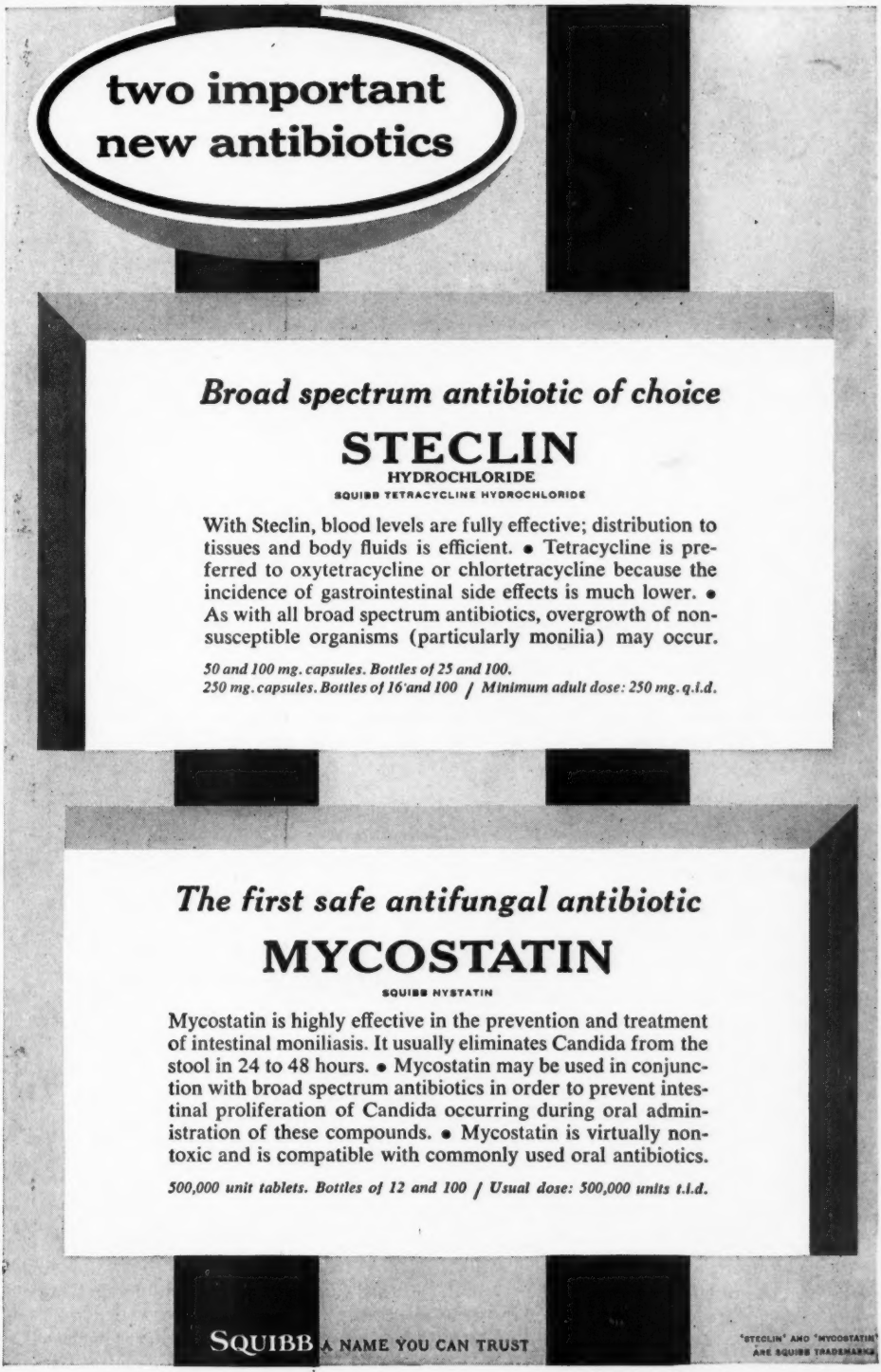
Sirs:

With the rising costs of living, I realize that $15.00 is a just amount to carry on the work of the A.PH.A. that is needed to enhance the profession of pharmacy.

It is very disheartening to know that a tradesman makes a much higher salary than a pharmacist and therefore has a better standard of living. Some day I hope that the AMERICAN PHARMACEUTICAL ASSOCIATION will place the pharmacist in the position that he rightly deserves.

I only hope that our organization will do something to remedy the situation that the present-day pharmacist finds himself in. With the super-chains and the doctor-owned clinics, the pharmacist will find himself on the way out unless something is done.

Downers Grove, Ill. JOSEPH VENCKUS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Members of the American Pharmaceutical Association are invited to submit their professional problems to The Journal, 2215 Constitution Ave., N. W., Washington 7, D. C., giving all pertinent details in your first letter.

Apiserum

What is Apiserum?—L. W. Z., Ohio.

Apiserum is advertised in a French magazine as "a discovery prolonging life" and purports to be the "gelée royale" which gives the queen bee vigor, strength, and size far exceeding that of the ordinary bee. Apiserum supposedly "regenerates the cells of the organism, retards old age, gives new freshness to the skin, and restores normal memory and sexual capacity." This "concentrated natural super-food" is manufactured by the Laboratoire (2) Apiserum, 37, Chaussée d'Antin, Paris-IX^{e}. An article entitled "Importance of the Food of the Queen Bee for Health," was published in *Oesterr. Apoth. Ztg.*, **8,** 709(Nov. 13, 1954).

Chlorophyll Ointment

Would you please give me a method for compounding a 1% chlorophyll ointment.—B. Y., Maryland.

The following formula is recommended by H. Lehman (*Schweiz. Apoth. Ztg.*, No. 10, 1953):

Stearic acid	14.0
Cetyl alcohol	3.0
Triethanolamine	0.8
Sodium lauryl sulfate	0.5
Glycerin	5.0
Chlorophyllin solution, 25%	4.0
(or dry Sodium chlorophyllin, 1.0)	
Distilled water, to make	100.0

Melt the stearic acid and cetyl alcohol at 75°. Dissolve the triethanolamine, sodium lauryl sulfate, and glycerin in water. Mix the two liquids with vigorous stirring and incorporate the chlorophyllin solution.

Ammi Majus Products

Can you help me supply a physician with information on a tablet called Ammi Majus (Linn).—R. W. M., Kentucky.

Ammi majus (Linn) is a plant native to Egypt. The active principles ammoidin and ammidin, isolated from the seeds, have been used in clinical trials for vitiligo and alopecia areata. A report on the latter use by L. E. Savitt appeared in *Arch. Dermatol. and Syphilol.*, **70,** 235-(Aug., 1954).

A preparation containing ammoidin and ammidin is available as Biomoidin Liquid from Bioproducts Oregon, Ltd., Warrenton, Ore. Ammoidin (8-methoxypsoralen) is marketed in 10-mg. capsules and in a 1% topical lotion by Paul B. Elder Co., Bryan, Ohio.

Phenol in Oil, 5 Per Cent

Please suggest a procedure for the preparation of a sterile 5% solution of phenol in oil for injection.—A. A. F., California.

The following procedure should be satisfactory: sterilize the oil to be used, such as peanut oil or sesame oil, by heating in a hot air oven at 150° C. for one hour under aseptic conditions (a sterile cotton plug in the mouth of the container). Transfer the sterilized oil to the final container which has previously been sterilized, add the required amount of phenol (crystalline), close the container, and agitate the mixture occasionally to dissolve the phenol.

Liquid Petrolatum Emulsion with Camphor and Neosilvol

Would you please suggest procedures for compounding the following prescription.—H. G., Massachusetts.

Menthol	
Camphor aa	*3 gr.*
Neosilvol	*10 gr.*
Liquid petrolatum ad	*1 oz.*
M.Ft. emulsion	
Sig.—2 drops as prescribed	

The following procedure based upon the method used for liquid petrolatum emulsion U. S. P. should be satisfactory: place 15 cc. of liquid petrolatum in a mortar; dissolve the menthol and camphor in the liquid petrolatum

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curb
complications

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add 4 Gm. of powdered acacia, mix well, then add 7.5 cc. of water all at once and emulsify the mixture; suspend the Neosilvol in the amount of water needed to make the finished product measure about 30 cc. and mix the Neosilvol suspension with the emulsion.

The following information might be useful: a mixture of liquid petrolatum, 90–95 parts, with polyethylene glycol 400 distearate, 10-5 parts, blends to make a clear "soluble oil" in which menthol and camphor can be dissolved. Addition of a small amount of warm water with agitation yields an emulsion. A suspension of the Neosilvol in enough water to make the final volume one ounce can then be added with agitation to the emulsion. Polyethylene glycol 400 distearate is produced by the Kessler Chemical Co., Inc., State Road and Cottman Ave., Philadelphia 35, Pa. Small amounts of this material can be obtained from the R. F. Revson Co., 243 W. 17th St., New York 11, N. Y., or the Summers Laboratories, Inc., Ambler, Pa.

Rust Prevention in Cold Sterilizing Solutions

What can be added to solutions of quaternary ammonium compounds used for cold sterilization of surgical instruments to reduce the formation of rust?—A. N., Washington.

A rust inhibitor, 2-hydroxypropylamine nitrite, is marketed as Q.A.I. by R. M. Hollingshead Corp., 840 Cooper Street, Camden, N. J. The material is soluble in water solutions with a *p*H of 8 or more; and in 0.05–0.1 per cent concentration it is claimed to prevent corrosion.

Vogan and Sterandryl

Would you give us any available information about the materials "Vogan" and "Injection Sterandryl" requested on foreign prescriptions?—D. I., Illinois.

Vogan is a liquid preparation containing "standardized vitamin A." It is marketed by Bayer and Merck in Germany. Sterandryl is testosterone propionate, which is available in oil or water solutions from many distributors in the United States.

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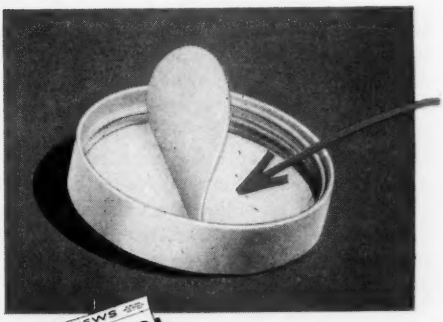

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Progress in Medicine

Treating Rheumatic Fever

A concise discussion on "Newer Concepts in the Diagnosis and Treatment of Rheumatic Fever" is given by Dr. Forrest H. Adams. He states that after the diagnosis has been established treatment should be directed toward: "eradication of any existing streptococcic infection in the body, particularly in the nasopharynx; prevention of future invasion of the body by streptococci; creation of optimal facilities for rest; suppression of fever, arthritis, and carditis; provision of a well-balanced diet including proteins and vitamins; and gradual resumption of activity after all signs of active disease have disappeared. Streptococci can best be eradicated by parenteral administration of 300,000 units of procaine penicillin daily for seven days, or by oral administration of 200,000 units of penicillin five times a day for seven days. Once the streptococci have been eliminated, reinfection can be prevented by oral administration of 200,000 units of penicillin twice a day. If a child can rest in a room by himself and proper attention can be given to his needs, he may be kept at home if he is not too acutely ill. In many instances, however, such conditions cannot be met, and it is best for both the child and the parents that some type of hospital or convalescent care be considered. As far as the patient is concerned, there would appear to be a real advantage in suppressing the manifestations of rheumatic fever, namely, fever, arthritis, and carditis. It is now well known that salicylates, cortisone, corticotropin, and certain phenolic compounds can suppress these manifestations; however, none of these compounds or substances appears to shorten the duration of the disease.

"A major question concerns the unanswered problem of altering the outcome of the disease in terms of residual heart damage by suppressing inflammation. The answer to this question may soon be available to us as the result of a cooperative project currently being sponsored by the American Heart Association and several institutions. Finally it must be mentioned that, once the disease has become inactive, recurrent attacks of rheumatic fever may be prevented by preventing streptococcic infections. This can best be accomplished by the administration of 0.5 to 1 Gm. of sulfadiazine daily throughout the year or by oral administration of 200,000 units of penicillin twice a day on an empty stomach. Sulfadiazine prophylaxis is cheaper than treatment with penicillin but necessitates closer medical supervision because of the slightly greater incidence of side-reactions. Prophylaxis should probably be continued for five years after the last attack or until adolescence, whichever occurs first."

[Adams, F. H., *J. Am. Med. Assoc.*, **156,** 1319(Dec. 4, 1954).]

Results of Chemotherapy In Urinary Infections

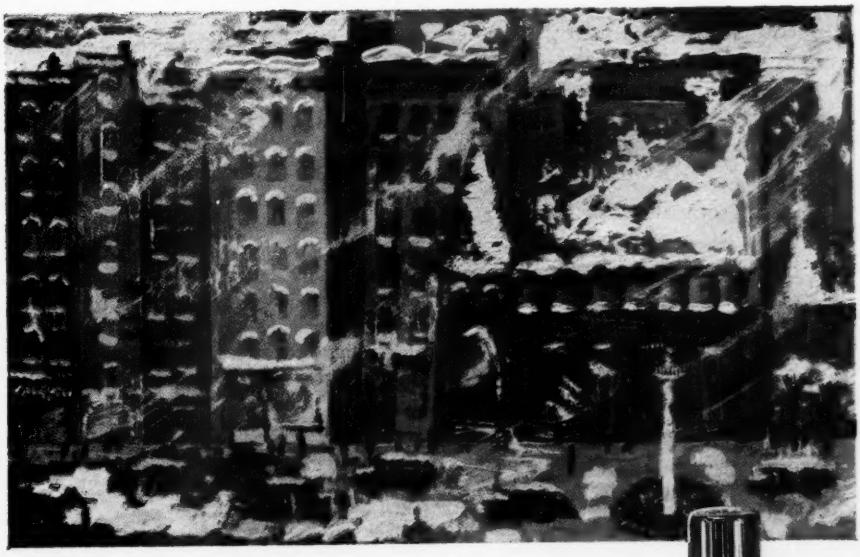
A study of clinical and laboratory findings in 1022 urinary infections in 686 adults, with 726 cases of infection treated with chemotherapy involving sulfatriad, sulfadimidine, sulfathiazole, penicillin, streptomycin, and chlortetracycline, is reported by three British physicians. After-treatment studies of 562 patients showed that, while the prognosis was good in patients with no urinary tract abnormalities and no history of urinary infection (16/34 males and 118/159 females being cured) and poor in patients with a definite urinary tract abnormality (only 39/116 males and 32/55 females being cured). The follow-up findings confirmed this and showed the necessity for examining the urine some months after treatment if the results are to be assessed correctly.

Among less important factors affecting cure, coccal infections were shown to respond best, those due to *Bact. coli* and *Bact. aerogenes* well, whereas infections due to *Proteus, Ps. pyocyanea,* and paracolon bacilli were more resistant to treatment. There was a clear relationship between the *in vitro* sensitivity of the organism and the outcome of treatment, and the use of laboratory sensitivity tests is advocated to avoid the prescription of inappropriate drugs. For most species identification only is no longer sufficient. No clear evidence was obtained that any one of the above drugs used most often was superior to the others.

[Garrod, L. P., Shooter, R. A., and Curwen, M. P., *Brit. Med. J.*, No. **4895,** 1003(Oct. 30, 1954).]

Pharmacological Effect of Drugs on Micturition

A brief report on the effects of some drugs on the bladder and urine retention and passage, by



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Menthol	q.s.
Alcohol	5%

Supplied in 16-ounce and 1-gallon bottles.

dosage: Every three or four hours—adults, 1 to 2 teaspoonfuls; children, ½ to 1 teaspoonful.

MEDICAMENTA VERA

Parke, Davis & Company

Progress in Medicine

Dr. Rex E. Van Duzen, before the A.M.A. Section on Urology, June 23, 1954, included the following observations: "With the exception of the choline derivatives, drugs do not materially affect the bladder of the normal person. It has been claimed that adrenergic drugs are antagonistic to cholinergic drugs. Ephedrine sulfate may aid in stress incontinence, but it is not the adrenergic action but the action on the cerebral centers that is beneficial. It is true that diphenhydramine, chlorprophenpyridamine, and methapyrilene have epinephrine-like action, but it is doubtful if the adrenergic action plays any part in the urinary difficulty that may result from their use; they are antihistaminic drugs. Naphazoline is a vasoconstrictor (sympathomimetic), and hydralazine is a vasodilator (sympathicolytic); both produce urinary retention at times, entirely as a side-effect. Methantheline exerts its chief action at the autonomic ganglions rather than at the peripheral nerve endings, blocking cholinergic transmission without preventing activation of the adrenergic end organs.

"The normal man notices little difficulty in voiding after taking diphenhydramine, naphazoline, hydralazine, or chlorprophenpyridamine. It is the man who has a slight to moderate enlargement of the prostate and is dulled by sleep or rendered tense by fear or cold who may have partial or even complete retention of urine after the use of these drugs. A man relaxed by a small amount of alcohol may void with ease, but a man stupefied by large amounts of alcohol, especially beer, often has complete retention, especially if a prostatic obstruction or urethral stricture is present. Morphine may not cause urinary retention in the normal person, but when it is combined with a partial interference of the passage of impulses through the association centers of the brain, as in the postanesthetic state, the same dose often causes urinary retention."

Drugs that affect the sensory nerves of the bladder are not specific. Drugs that affect the motor nerves may be divided into adrenergic and cholinergic. Adrenergic drugs probably have very little effect on the act of micturition. Drugs such as ephedrine may have not only adrenergic but also central action. Cholinergic drugs derive their action by potentiating the action of acetylcholine. Morphine acts directly on the muscle protoplasm. Estrogenic and androgenic hormones derive their effect mainly from action on the erectile tissue.

[Van Duzen, R. E., *J. Am. Med. Assoc.*, **156**, 1393(Dec. 11, 1954).]

ACTH and Cortisone In Skin Disorders

A review of the procedures followed and the results obtained in an investigation of the use of ACTH and cortisone in the treatment of skin disease, conducted by a panel appointed by the Medical Research Council (British), concludes: "In exfoliative dermatitis other than that following psoriasis the disease is controlled and often cured. In eczema, except in the seborrheic type, there is a dramatic response, but usually a relapse following suspension of treatment except where an exogenic cause has been recognized and removed. In Besnier's prurigo relief of symptoms is equally dramatic while the patient is under treatment, but there is less effect on the underlying lichenification. ACTH and cortisone prevented or reduced the reaction to patch tests which had previously been positive. Toxic reactions were encountered and are detailed. A few were of a serious character, but occurred in patients who were to be regarded as susceptible to such happenings."

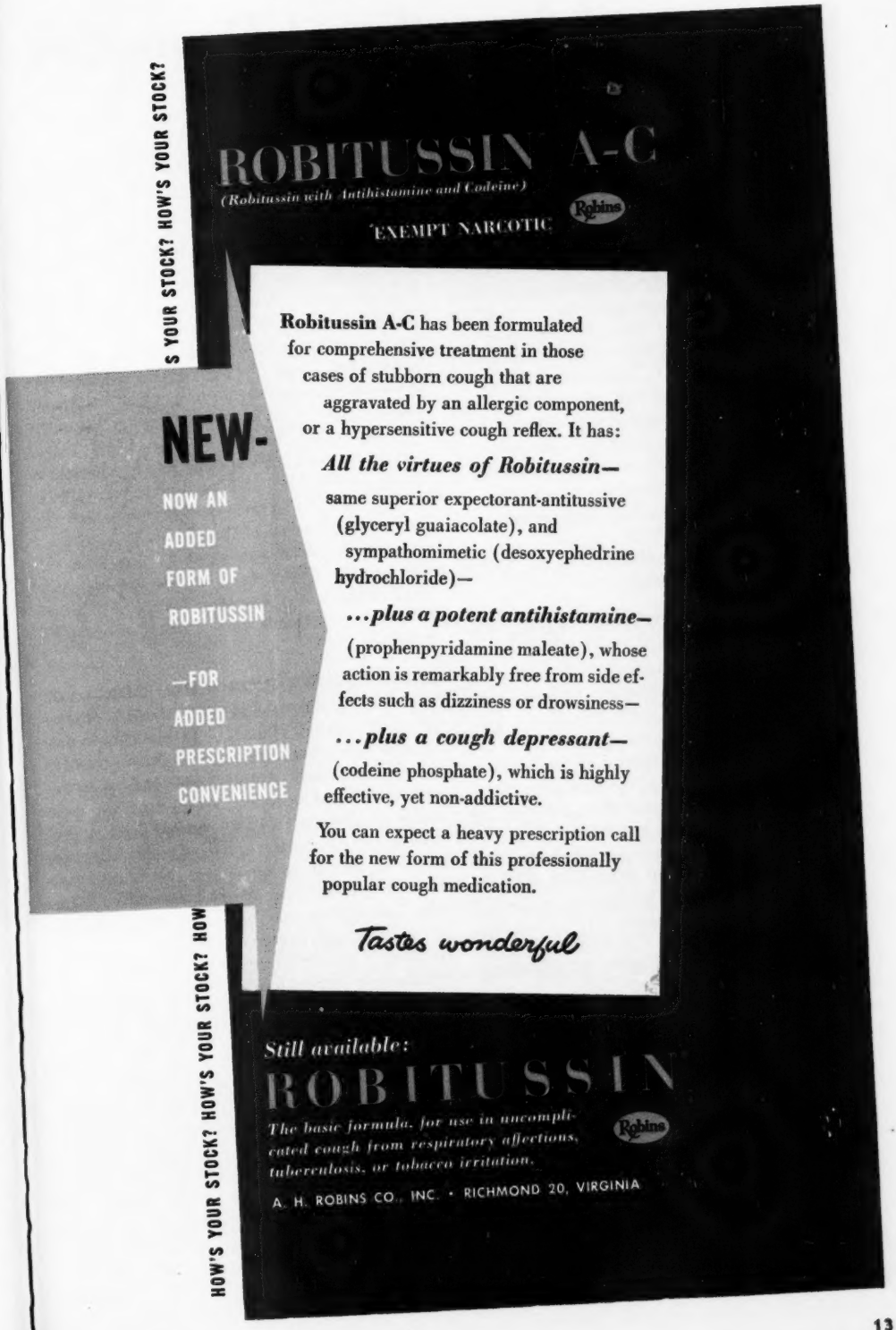
The patients were treated by injection of 100–150 mg. of cortisone or 50–100 I.U. of ACTH daily, with the dosage often reduced toward the end of the course of treatment, or with cortisone being replaced by a diminishing dose of ACTH. There was no significant difference in dosage between those who responded immediately and those who failed to do so, or between those who relapsed and those who remained well. Most patients received 100 mg. of ascorbic acid orally two or three times daily. No patients were treated topically with cortisone or ACTH.

[First Report of the Medical Research Council Panel on Dermatological Applications of ACTH and Cortisone, Ingram, J. T., *et al.*, *Brit. Med. J.*, **4900**, 1307(Dec. 4, 1954).]

Anti-Inflammatory Mechanism of Hydrocortisone

Based upon measurements of released leucotaxine and LPF (leukocytosis-promoting factor) in exudates produced when acute inflammations were induced in dogs, Dr. Valy Menkin concludes that the evidence he has reported "indicates that the anti-inflammatory mechanism of compound F can be explained as acting at a cellular level (in distinction to molecular, enzymatic, or other levels). The activity of the injured cell is impaired, so that it becomes less effective in producing some, if not all, of the specific chemical factors involved in inflammation."

[Menkin, V., *Science*, **120**, 1026(Dec. 17, 1954).]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New and Nonofficial Remedies

Detailed information on the abstracted monographs of products recently accepted by the A.M.A. Council on Pharmacy and Chemistry appears in the current issues of THIS JOURNAL, *Scientific Edition.*

TOLONIUM CHLORIDE.—Blutene Chloride (Abbott).—3-Amino-7-dimethylamino-2-methylphenazathonium chloride.—Tolonium chloride, known as a dye by the name toluidine blue 0, reduces the bleeding tendency in certain hemorrhagic conditions associated with excessive amounts of heparinoid substances in the blood. The usual oral dose of tolonium chloride is 0.2 to 0.3 Gm. daily. For the treatment of menorrhagia, the drug is administered with meals during the menstrual period; for the prevention of menorrhagia, it is administered for five or six days prior to the estimated time of the menses. In menometrorrhagia, medication may be extended over two or three menstrual periods.

Blutene Chloride Tablets: 0.1-Gm. Abbott Laboratories, North Chicago, Ill.

AMODIAQUIN HYDROCHLORIDE.—Camoquin Hydrochloride (Parke, Davis).—4-(7-Chloro - 4 - quinolylamino) - α - diethylamino - *o*-cresol·2HCl·2H_2O.—Amodiaquin hydrochloride, a synthetic antimalarial agent, is equal to chloroquine phosphate in antimalarial potency and has the same relatively low toxicity. Amodiaquin is capable of producing a radical cure only for infection caused by *Plasmodium falciparum;* it abolishes the acute attack and eradicates the infection. Against *P. vivax* or *P. malariae* infections it is effective only for the treatment of acute attacks to relieve clinical symptoms, to control parasitemia, and to increase the interval between treatment and relapse. Amodiaquin hydrochloride is administered orally. Dosage is expressed in terms of the base. For the treatment of acute attacks of malaria, the usual single dose for adults is 0.4 to 0.6 Gm. The usual dosage for children, given either as a single dose or in three divided doses at 12-hour intervals, is as follows: 1 to 2 years, 0.1 Gm.; 3 to 5 years, 0.2 Gm.; 6 to 15 years, 0.4 Gm.; 15 years and above, adult dose. For suppression of endemic malaria, the usual dosage for adults is 0.4 to 0.6 Gm. administered once every two weeks; for children, the dosage should be reduced according to age and spaced at the same interval.

Camoquin Hydrochloride Tablets: 0.2-Gm. Each tablet contains the equivalent of 0.2 Gm. of amodiaquin base. U. S. patents 2,474,818 and 2,474,821. U. S. trademark 500,228. Parke, Davis & Company, Detroit, Mich.

TETRACYCLINE.—Tetracyn (Pfizer).—Tetracycline, an antibiotic from a Streptomyces growth media or prepared chemically from chlorotetracycline or from oxytetracycline, differs from chlortetracycline (Aureomycin) and oxytetracycline (Terramycin) only by replacement of the chlorine atom in the molecule of the former and by replacement of one hydroxyl group in the molecule of the latter by a hydrogen atom. Tetracycline, the base, has the same actions and uses as the hydrochloride. It is administered orally in dosages the same as the hydrochloride, which also is expressed in terms of the base.

Tetracyn Oral Suspension: 1.5-Gm. vials. A powder with added flavoring for suspension in distilled water to give a concentration of 25 mg. of tetracycline in each cc. Pfizer Laboratories, Brooklyn, N. Y.

TETRACYCLINE HYDROCHLORIDE.—Achromycin Hydrochloride (Lederle).—Tetracyn Hydrochloride (Pfizer).—Tetracycline hydrochloride has actions and uses similar to those of chlorotetracycline (Aureomycin) and oxytetracycline (Terramycin). Tetracycline is more stable in solution. Tetracycline sometimes produces nausea, vomiting, and loose stools, but these reactions appear to occur less frequently than with chlortetracycline or oxytetracycline. Likewise, tetracycline may also allow superinfection of the colon with bacteria and yeasts that are re-resistant to its antibiotic effects. The dosages of tetracycline hydrochloride for varying degrees of illness should be the same as those employed when either chlortetracycline or oxytetracycline is used.

Achromycin Hydrochloride Capsules: 50-, 100-, and 250-mg. **Achromycin Hydrochloride Solution (Intravenous):** Vials containing 0.1, 0.25, and 0.5 Gm. of tetracycline hydrochloride. Buffered with ascorbic acid. **Spersoids Achromycin Hydrochloride:** 36- and 75-Gm. bottles. A flavored powder containing 16.67 mg. of tetracycline hydrochloride in each Gm. **Achromycin Hydrochloride Tablets:** 50-, 100-, and 250-mg. Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

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N.N.R.

Tetracyn Hydrochloride Tablets: 50-, 100-, and 250-mg. Pfizer Laboratories, Brooklyn, N. Y.

ADDITIONAL ARTICLES ACCEPTED FOR ADMISSION TO N.N.R.

***p*-Aminosalicylic Acid**—*Tablets Parasal (Buffered)*: 0.5-Gm. Buffered with 11.5% calcium carbonate and 7.7% dihydroxyaluminum aminoacetate. U. S. trademark 537,496. The Panray Corporation, New York, N. Y.

Bacitracin—*Powder Bacitracin (Topical or Intramuscular)*: Vials. Each vial contains the equivalent of 2,000, 10,000, or 50,000 units of bacitracin. The Upjohn Company, Kalamazoo, Mich.

Cyclopentamine Hydrochloride—*Topical Solution Clopane Hydrochloride 0.5%*: 15-cc. bottles. An isotonic solution containing 5 mg. of cyclopentamine hydrochloride in each cc. Preserved with phenylmercuric nitrate 1:50,000. Eli Lilly & Company, Indianapolis, Ind.

Diethylstilbestrol-U. S. P.—*Tablets Diethylstilbestrol:* 5-mg. Rexall Drug Company, Los Angeles, Calif.

Folic Acid-U. S. P.—*Tablets Folic Acid:* 5-mg. The Evron Company, Inc., Chicago, Ill.

Hexamethonium Chloride

Powder Hexamethonium Chloride: Bulk; for manufacturing use. Hexagon Laboratories, Inc., New York, N. Y.

Solution Bistrium Chloride: 10-cc. vials. A solution containing 0.135 Gm. of hexamethonium chloride (0.1 Gm. of hexamethonium ion) in each cc. Preserved with 0.9% benzyl alcohol. E. R. Squibb & Sons, Division, Mathieson Chemical Corporation, New York, N. Y.

Hydrocortisone

Ointment Cortril: 5- and 14.2-Gm. tubes. An ointment containing either 10 mg. or 25 mg. (5-Gm. tube size only) of hydrocortisone in each Gm. Preserved with 0.18% methylparaben and 0.002% propylparaben. U. S. Patent 2,658,023. Pfizer Laboratories, Division, Chas. Pfizer & Co., Inc., Brooklyn, N. Y.

Lotion Hydrocortone: 88.7-cc. bottles. A lotion containing 10 mg. of hydrocortisone in each Gm. Preserved with 0.15% sodium methyl *p*-hydroxybenzoate. *Ointment Hydrocortone:* 5-Gm. tubes. An ointment containing 10 or 25 mg. of hydrocortisone in each Gm. Sharp & Dohme, Division Merck & Co., Inc., Philadelphia, Pa.

Merethoxylline Procaine—*Solution Dicurin Procane:* 2-cc. ampuls. A solution containing 0.1 Gm. of merethoxylline as the procaine salt (equivalent to 39.3 mg. of mercury) and 50 mg. of theophylline in each cc. Preserved with 0.5% chlorobutanol. Eli Lilly & Company, Indianapolis, Ind.

Prophenpyridamine Maleate—*Tablets Trimeton Maleate:* 37.5-mg. (equivalent to 25 mg. of prophenpyridamine). U. S. Patent 2,567,245. U. S. trademark 509,760. Schering Corporation, Bloomfield, N. J.

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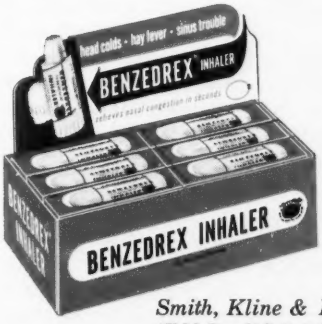

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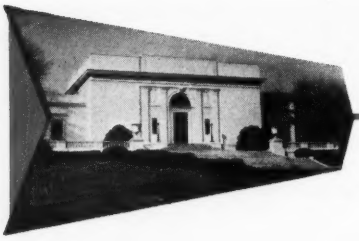


STRAIGHT FROM HEADQUARTERS

ROBERT P. FISCHELIS, EDITOR

A Realistic View of the Future

SOME YEARS AGO one of the Flexner brothers, all of whom were famous for outspoken criticism of contemporary affairs, wrote an article in Harper's magazine which was entitled "A Vanishing Profession." It dealt with what seemed to him the deterioration and eventual demise of the profession of pharmacy.

While we could not agree with either the premises or the conclusions of the article it did give us pause, and from time to time we have pondered both the pros and cons of the professional status of pharmacy.

The beginning of a new calendar year and the apparent momentous impending changes in both professional and public aspects of the production, distribution and application of drugs now in progress call for an appraisal of what the future may hold in store for us.

In the space available we can call attention only to a few high lights and must reserve detailed comment on any or all of them for future discussion. We especially invite comment from readers on the question raised on this page.

It now becomes clearly apparent that the arbitrary classification of drugs into those which may be supplied only on prescription and those which may be supplied without restriction of any kind, resulting from the enactment of the Durham-Humphrey Amendment to the Food Drug and Cosmetic Act, is profoundly affecting the practice of pharmacy.

In states where the pharmacy acts carry no provision for the restriction of dispensing of packaged proprietary or non-proprietary drugs to registered pharmacists or persons working under their immediate personal supervision, the arbitrary classification under the Durham-Humphrey Amendment opens the door to the sale of "non-legend" or non-prescription drugs to any kind of retail outlet. This is also true of states where there is some kind of regulation along this line but its enforcement is weak.

Even the manufacturers of proprietary preparations are not happy about having all of the non-legend proprietaries offered for sale in any kind of retail establishment. Nevertheless there is no apparent desire on their part to join the profession in promoting legislation which will provide necessary public protection if it in any way interferes with the unrestricted sale of their own advertised products.

Pharmacists are being prepared more thoroughly for an important role in public health, with special reference to the dispensing of drugs, than ever before. The public has a right to expect the protection which the registered pharmacist is qualified to give. Perhaps the time has come when the decision as to how drugs and medicines are to be dispensed should have greater attention from public spirited citizens outside of the profession and drug industry who are at present uninformed of the trend which this activity is taking.

Recent graduates of schools of pharmacy are beginning to derive a more satisfying professional experience from the practice of hospital pharmacy and governmental and institutional activities, which utilize their experience and training, than they can perceive in the practice of pharmacy in many retail drug stores.

This is a situation which must be given very careful thought by those who have anything to do with recruiting personnel for the profession. This is of course a matter of great moment to pharmaceutical educators. It is not a time for those who have thought this situation through to remain silent.

Obviously, modern methods of production, standardization, packaging and labeling of drugs must have their effect on distribution.

However, it is a short-sighted policy which considers only the expediency of providing large numbers of outlets for drug products without paying attention to the competency of those who man such outlets.

The future of pharmaceutical education, licensure and even the production and distribution of drug products as a mercantile pursuit may be affected most seriously by the attitudes of members of the industry toward what constitutes an adequate public service in this field.

When Flexner speculated on the possibility that pharmacy might be a vanishing profession, he probably foresaw something of the present trend. We do not see the future as darkly as it seemed to Flexner but we cannot escape the realization that if present trends continue, the number of pharmacists required to supply the professional service which is indispensable to the public will be reduced considerably.

It is this phase of the contemporary development which should have the attention of the best minds in the profession and in the industry.

National Drug Trade Conference

At its annual meeting for 1954 held on December 3 in Washington, D. C., the National Drug Trade Conference tackled its customary problems with renewed and unusual vigor.

Starting with an analysis of the activities of the conference by both Acting President Dr. Frederick Cullen and Secretary Ray Schlotterer and continuing with the comment on procedures supplied by Dr. Hugo H. Schaefer, the delegates were treated to a kind of analytical self-appraisal of the function and accomplishments of the conference.

This was followed by the presentation of a number of reports among which that of the Committee on Uniform State Legislation attracted considerable attention. It was pointed out that uniform state bills to cover various regulatory phases of pharmacy had been agreed upon by the members of the conference with the exception of the provisions of a State Pharmacy Act that would include regulation of the sale of packaged drugs. The controversial nature of this problem has long faced the profession and industry and there has never been a satisfactory solution of it.

With 44 state legislatures meeting this year the profession is again faced with controversy on the type of amendments which are to be offered to state pharmacy laws to meet the growing difficulty of keeping the distribution of drug products under professional supervision.

There are some in the drug industry who have little interest in the type of outlet which dispenses drugs. Others are very much concerned lest the distribution of all packaged remedies for which adequate directions for use can be written will become general store merchandise thus depriving those who wish to medicate themselves of adequate answers to their questions about the dosage, possible harm from excessive use and other information which the public is accustomed to obtain from trained pharmacists.

The conference passed resolutions condemning the conduct of business enterprises by the Federal Government which are needlessly in competition with private competitive enterprise; expressing opposition to the efforts of the Council of State Governments in endeavoring to merge the various professional examining and licensing boards and depriving them of their administrative and regulatory duties; commending the President of the United States for his efforts to stamp out narcotic drug addiction; condemning the marketing by the Government of accumulated surplus drugs which may have deteriorated because of age and improper storage; urging more effective enforcement procedures to bring about compliance with fair trade contracts; urging rotation in the offices of president and vice-president of the conference among representatives of the constituent bodies; recommending the stimulation of discussion within the conference of current problems even though they may be of a controversial nature; urging the selection of influential members of the constituent bodies as delegates to the conference.

The Conference also voted to instruct its Committee on Uniform State Legislation to continue its efforts to bring about a composition of the controversy in this field and instructed the committee to proceed with its activities and report at frequent intervals to the conference or to its Executive Committee.

(Continued on page 49)

This is a model of Fontainebleau, Miami Beach's new hotel and 1955 convention headquarters.

It's Miami Beach in May

A "WORKING" convention—with a bargain Florida vacation thrown in—awaits those planning to attend the 102nd annual convention of the AMERICAN PHARMACEUTICAL ASSOCIATION from May 1–7 at Miami Beach.

Focal point of convention activities this year will be the fabulous Fontainebleau, Miami Beach's newest resort hotel, which in recent weeks has taken pictorial bows in a number of leading magazines. In and around this $15 million ocean-front wonder, convention-goers will find every avenue to relaxation and comfort. What's more: all will be at off-season rates.

Prices at the Fontainebleau as well as at surrounding hotels change on or about April 30. This seasonal reduction generally will bring prices into line with customary A.PH.A. convention rates.

Happily, prices apparently will be the only item reflecting an official end to the Miami "season." Certainly the weather will recognize no such line of demarcation. Over the past 12 years, the mean temperature for Miami Beach in May was 78.4, according to the U. S. Weather Bureau. Mean temperature for April, on the other hand, averages out to a scant three degrees lower, or 75.3.

Beckoning delegates during convention off-hours, aside from unofficial meetings and reunions, will be scores of activities. To name a few: boating, golf, bathing, fishing. Motor launches will be plying the Inland Waterway and excursion boats will be making coastal cruises.

Adjoining the Fontainebleau itself are 14 acres of ocean front in the heart of Miami Beach. The hotel grounds include some five acres of formal gardens, a 1,000-foot private beach and two swimming pools.

On the working side, a tentative convention agenda sets the official convention opening for Sunday evening, May 1. Executive committees, however, will begin their meetings as early as Friday, April 30, continuing through Saturday and Sunday. Also preceding the official opening

will be a Saturday session of the National Conference of State Pharmaceutical Association Secretaries.

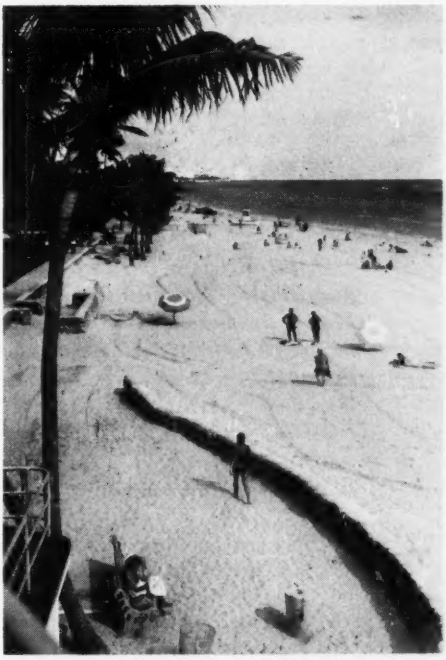
The American Association of Colleges of Pharmacy will launch its meetings Sunday as will the American Society of Hospital Pharmacists and the American College of Apothecaries. Convening Monday morning will be the National Association of Boards of Pharmacy.

First general session of A.PH.A., highlighted by the president's address, will be Tuesday evening. Other general sessions are scheduled for Thursday morning and Friday evening. The House of Delegates will open its meetings Tuesday afternoon.

Sessions of the various sections of A.PH.A., including Scientific, Practical Pharmacy, Education and Legislation, Pharmaceutical Economics, Student and Historical Pharmacy, are scheduled for Wednesday, Thursday and Friday afternoons.

Special arrangements are planned for the Student Section so as to enable delegates from the 73 student branches to observe meetings of various affiliates and sections of the parent body.

Hotel reservations at convention rates may be made through a form the convention Housing Bureau will be mailing to members within the next few weeks. This form will list complete information as to cost and hotel location.



Beaches will be inviting for the Weather Bureau promises high-70 temperatures.

Launches ply the Inland Waterway, affording views of beach-front gardens.

Why All the Delay on Fluoridation?

By E. Roy Hammarlund

In hundreds of cities across the United States, the question of fluoridation for municipal water supplies continues to crop up. Many persons—including not a few pharmacists—still aren't aware of the part fluoridation can play in fighting America's number one disease: tooth decay. Here, E. Roy Hammarlund, assistant professor of pharmacy at the State College of Washington School of Pharmacy, Pullman, Wash., presents the findings of a number of fluoridation surveys. He urges pharmacists to take a leading role in bringing fluoridation to their communities.

WHEN NATURE deposited her many minerals, she overlooked some areas in the fluoride department. In many locales, she left the water supply with no fluoride content or, if any, not enough.

On the other hand, some 1,401 public water supplies in the United States contain enough natural fluoride to reduce sharply the incidence of tooth decay (1), America's number one disease today (5, 6).

Fortunately, something can be done about fluoride-shy areas. And the worth of correcting nature's oversights is borne out in numerous dental surveys.

These studies, made throughout the United States and other countries, prove when drinking water contains as little as one part per million (p.p.m.) fluoride, cavities are decreased by as much as 70 per cent (2, 3, 4, 5). Contrary to popular belief, such a small amount of fluoride does not alter the water's taste, color, or odor. Nor does it contribute to water's hardness (5, 7).

Determining Effect

Considerable research has gone into determining the value and effectiveness of fluoridation. Some cities (2, 4) have had experimental fluoridation programs in effect for as many as ten years and there have been studies made upon communities whose residents have been drinking naturally fluoridated water for more than 60 years (10). In some areas this natural fluoride content runs as high as 8 p.p.m. (8, 9).

An example is the Newburgh-Kingston study, started in 1944 when the water supply of Newburgh, N. Y., was fluoridated, while the water supply of a sister city, Kingston, N. Y., was not fluoridated and thereby served as a control. Comprehensive dental studies upon children in both cities have since shown that dental decay has been reduced by as much as 78 per cent in Newburgh and has not reduced at all in Kingston (4).

Reduces Decay

Another study, Grand Rapids-Muskegon, began in 1945 when the water supply of Grand Rapids, Mich., was fluoridated while the water supply of Muskegon, Mich., remained fluoride-free. Detailed studies upon children show that dental decay has been reduced by as much as 71 per cent in Grand Rapids while there was no reduction in Muskegon (2). Muskegon has since fluoridated its water supply.

A similar study was launched in 1950 in Colorado Springs-Boulder, Col. Examinations were made in Colorado Springs on adults aged 20 to 44 who had been drinking naturally fluoridated water all their lives. Permanent residents of the city of Boulder which has a fluoride-free water supply were used as a control. The people of Colorado Springs were found to have a cavity rate 60 per cent less than those of Boulder for each age level (11). Also, Boulder citizens were found to have lost four to five times as many teeth from cavities as had Colorado Springs citizens.

Results of these and other dental studies are so favorable that it is becoming increasingly difficult to get cities to act as controls for future fluoridation studies (12).

In order to receive the full value from fluoridation, a child should begin drinking fluoridated water before the formation of his permanent teeth. The ingested fluoride ion is incorporated into the enamel and dentin of the teeth making them harder, less easy to indent, and less soluble in mouth acids—benefits which last a lifetime (13). The older a person is when he starts drinking fluoridated water, the less benefit he receives. To use the Grand Rapids study as an example: 16-year-old children, who were started on fluoridated water when they were eight years old and had most of their permanent teeth, show a cavity (professionally: caries) reduction of 25 per cent compared to the 71 per cent for the younger children (2).

Projects Listed

Because of these successful experiments, and many others, the fluoridation program has received wide acceptance throughout the country. Some of the larger cities artificially fluoridating their water supply are: Baltimore, Baton Rouge, Cambridge, Indianapolis, Louisville, Miami, Philadelphia, Pittsburgh, Providence, Rochester, San Francisco, Schenectady, St. Paul, and Washington, D. C. There are also some water fluoridation projects in Alaska, Panama Canal Zone, and Puerto Rico.

Other large cities have adopted the fluoridation program but are awaiting the installation of the necessary equipment. Some of these cities are: Berkeley, Buffalo, Chicago, Cleveland, Detroit, Duluth, Flint, Oklahoma City, and Toledo.

In fact, there are more than 20 million people (1,010 communities) now drinking artificially fluoridated water (14); about six million people drinking naturally fluoridated water with similar or greater fluoride content (15); and about 16 million people living in communities that have recently approved fluoridation (14). This represents more than a fourth of the total population.

Although dental benefits have received the most complete study, there may be other benefits derived from drinking trace amounts of fluoride. There is an indication that fluoridation may even help one's hearing. In one study there was found to be 4.9 per cent hearing defects in 110,000 children from low fluoride districts compared with only 2.8 per cent defects in 21,000 children from high fluoride districts (16). This aspect is being investigated further.

The entire fluoridation program has received a more intensive and comprehensive study than any public health program ever adopted (17, 18). There have been many irresponsible statements made concerning the toxicity of the recommended concentration of fluoride upon the body. But one way to prove the harmlessness of the fluoridation program is to cite the voluminous data already compiled—all of which is favorable to water fluoridation. There is no evidence that there is any toxic effect due to drinking water fluoridated to the concentration of 1 p.p.m.; nor is it in any way harmful to any living thing (3, 19, 20, 21, 22). The concentration of 1 p.p.m. has an ample margin of safety. Indeed, it would be impossible to absorb an acute lethal dose, 4 Gm. of sodium fluoride (23), unless a person drank over one thousand gallons of the fluoridated water at one sitting.

Some people claim drinking fluoridated water brings about certain ill effects. This is not true. The medical profession has made exhaustive studies on many hundreds of thousands of people, and has found that there is *no* increase in heart trouble, kidney trouble, hemorrhage, diabetes, thyroid trouble, stillbirth, and that there were no other deleterious effects.

The National Cancer Institute has similarly made numerous studies and found absolutely no indication of an increase in any type of cancer. In fact, the incidence of breast cancer was found to be much lower than average in some Texas areas receiving a high fluoride content (10). Likewise, after nine years of fluoridation, the cancer death rate in Grand Rapids, is 10 per cent lower than it was prior to the adoption of the program; whereas the national cancer death rate has increased 16 per cent for the same period (24). However, these instances are not being cited as evidence that fluoridation prevents cancer—only that it does not cause cancer.

Authorities Agree

Authorities in chemistry and biochemistry agree unanimously that artificially fluoridated water is exactly the same as so-called natural fluorine water (25). This is so because the fluorine found in any water is in the ion form and all fluoride ions are identical whether they occur naturally or are artificially added. Therefore, exactly the same benefits are derived from drinking artificially fluoridated water as from the natural water (21, 26).

Climate is a factor in determining the correct concentration of fluorides to use in the water supply. Studies have shown that children raised in areas with a mean annual temperature of 70° F., as in southern Arizona, consume approximately twice as much water as children living in areas with a mean annual temperature of 50° F.,

as in the Great Lakes region (27). Since water consumption increases as the temperature increases, it is advisable to reduce the fluoride concentration to approximately 0.6 p.p.m. during the summer months in any unusually warm area.

The fluoridation program has received a great deal of support throughout the country. The following organizations have endorsed the controlled artificial fluoridation of community water supplies:

American Dental Association
American Medical Association
AMERICAN PHARMACEUTICAL ASSOCIATION
U. S. Public Health Service
National Institute of Dental Research
American Association for the Advancement of Science
American Society of Dentistry for Children
American Public Health Association
National Research Council
American Hospital Association
American Nurses Association
State and Territorial Dental Directors Association
State and Territorial Health Officers Association
The Conference of State Sanitary Engineers
American Water Works Association
National Congress of Parents and Teachers
National Institute of Municipal Law Officers
Most State Departments of Health

The introduction of anything new naturally is bound to receive some sincere opposition for a limited time, and fluoridation is no exception. This can be likened to the considerable opposition which developed in the past to the now standardized public health measures of water chlorination, smallpox vaccination, and milk pasteurization. The initial opposition is usually based on ignorance of the facts.

Usual Questions Cited

Here are answers to questions usually posed by the opponents of fluoridation:

Fluoridation is *not* unconstitutional and is *not* an invasion of religious freedom. Five court decisions concerning the legality of water fluoridation were handed down in the last few years, and all five were decided in favor of fluoridation with an accompanying statement to the effect that there is no legal obstacle to adopting and carrying out a fluoridation program (28). Likewise, a spokesman for the National Institute of Municipal Law Officers (29) has stated, "Fluoridation is a constitutionally permissible exercise of the municipal civil government and is not an unconstitutional invasion of the right of freedom of religion."

Fluoridation is *not* mass medication. It is no more medication than the accepted practice of the enrichment of flour by the addition of vitamins. Medication implies the addition of a medical substance for the treatment or cure of a disease. Water fluoridation is not a treatment or cure for dental caries (30). Since dental decay is a nonhealing lesion, the dental enamel once injured never repairs itself—with or without medication. Fluoridation simply prevents the initial development of dental decay by simulating a purely natural phenomenon through the addition of an ingredient to the water supply in some areas, an ingredient that is already naturally present in the drinking water of approximately 5 per cent of the nation's population (3).

Decision Is Voluntary

Fluoridation is *not* a form of socialized medicine. The decision to fluoridate a communal water supply is an entirely voluntary decision to be made by each municipal civil government and is in no way a compulsory socialistic measure. The fact that many national organizations which are strongly opposed to any practice of socialized medicine do wholeheartedly endorse the fluoridation program should also help to dispel this fear.

The objection to water fluoridation on the grounds that less than 1 per cent of the treated water is consumed for drinking purposes would be serious if the costs were appreciable. However, the moderate 5–15 cents per capita per year cost for the total community population is much less than the cost of any other suggested prophylactic technique.

The suggestion that a fluoride compound should be added to some food product in preference to water is not feasible (17). The consumption of any given food, including milk, is not universal nor sufficiently constant to assure the benefits known to accrue from water fluoridation. Likewise, it would be very difficult to achieve adequate control in many of the smaller dairies throughout the country.

Fluoridated water may be used safely in all industrial processes in which tap water may be used. There have been no adverse effects reported by any industrial plants that are currently using fluoridated water, such as bottlers, brewers, bakeries, canneries, laundries, or any other (7).

Large chemical companies such as Du Pont and Allied Chemical and Dye Corporation report that fluoridation has had no adverse effects upon any of their intricate industrial processes (12). Likewise, the pharmaceutical industry reports that fluoridated water may be used in pharmaceuticals whenever tap water can be used (31). Whenever chemically pure water is

needed, distillation will remove the fluoride and any other natural salts that are present. However, fluoride is not removed by home water softeners and those drinking "home-softened" water will still receive the beneficial effects (5, 7).

Many different types of water fluoridators are available, as are several fluorine-containing chemicals. The choice of the special type of equipment and chemical to use varies with each installation, being dependent mostly upon the size of the water supply to be fluoridated. Most of the machines are designed to be at least 99 per cent accurate in the rate of chemical delivery and also have the added safety feature of shutting themselves off instantly or sounding an alarm if there is any deviation in the proper rate of feed.

Procedures Explained

Solution-type feeders are best adapted for small installations. By using the most soluble fluoride chemicals, sodium fluoride or hydrofluoric acid, this method has the advantage of providing a concentrated fluoride feed solution; however, one receives the smallest amount of fluoride per dollar of chemical since these are the most expensive of the chemicals used.

Dry-type feeders operate either volumetrically using sodium fluoride or sodium silicofluoride for medium-sized installations or gravimetrically using sodium silicofluoride for the largest installations. The volumetric feeder delivers a measured volume of fluoride chemical in a given time, whereas the gravimetric feeder operates on a loss-in-weight principle and delivers a measured weight of the chemical in a given period.

The purchase price of one fluoridator runs from about $500 for the most simple solution-type to several thousand dollars for the largest gravimetric dry-type feeder (32). A recent survey of those cities presently fluoridating their water supply shows an average cost of fluoridation equipment and installation expense of $2,000 for a city of 5,000–10,000 population, $3,000 for a city of 10,000–50,000 population, and $10,000 for a city of 50,000–100,000 population (33).

A trained operator must be present in the fluoridation plant and simple quantitative chemical tests must be periodically run on the fluoridated water as a final check on the fluoride concentration. These laboratory control procedures for fluorides are similar to those highly standardized in the control of water chlorination.

The entire cost of the chemicals, operation, and depreciation, after the initial installation has been completed, is from 5 to 15 cents per person per year based on the average of all fluoridation programs currently in operation (5). The variation is largely due to the cost of the different chemicals used. The use of the more expensive sodium fluoride in small installations costs about 10 cents per person yearly for the chemical, whereas the use of the cheaper sodium silicofluoride costs about 4 cents per person yearly for the chemical, and is the most advantageous for all but the smallest installations.

Because of the moderate cost, it can readily be integrated into charges for water services as a regular expense so that the customers who benefit will absorb the slight added expense. The initial equipment and installation expense can be amortized over a 10- or 20-year period, and thereby would become quite small on a yearly basis. In this way the average fluoridation costs should be less than 2 per cent of average gross water department income (34). Such a means of handling the matter has met with the approval of the public service commissions of most states (17).

Compare this small cost with the savings in dental bills that could be made possible by the adoption of fluoridation. The average dental bill of persons drinking nonfluoridated water is more than five times the average dental bill of those drinking fluoridated water for the proper period. Likewise, it has been calculated that $38 could be saved on dental bills for each $1 spent on fluoridation. In fact, the cost of one filling would pay for a person's fluoride chemicals for thirty years.

Discovery of the role of the fluoride ion in dental decay and its use as a caries preventive will undoubtedly go down as the greatest advancement in dental history and will rank alongside the other great discoveries of deficiency diseases of external origin such as scurvy, rickets, and beri-beri (3, 35). In fact, it is sure to be rated as one of the greatest public health measures of all time (18). However, it must be remembered that fluoridation is not a cure-all; it must go hand in hand with the other caries-preventive habits such as adequate tooth brushing and proper diet.

Effect on Dentists?

Complete adoption of the fluoridation program will not put any dentists out of work. The average dental decay rate is five times faster than can be corrected by the now available dental personnel (6). As the fluoridation reduces the number of new dental caries, dentists will then be able to catch up on the backlog of presently ignored decayed teeth and they will also have more time to concentrate on other preventive and corrective measures such as periodontistry

and orthodontistry. As a result of this extra attention by dentists, our next generation of children may approach adulthood with a full complement of healthy teeth instead of having the appalling present national average of over twenty decayed, missing, or filled (D. M. F.) teeth.

Dr. F. A. Bull (25), supervisor of Wisconsin State Board of Health, made this statement in 1949: "It is now the prerogative of any community with a public water supply to decide whether its children of 14 years of age are to continue to have the present D. M. F. rate of 10 or a rate of 3, and whether adults of 45 years of age are to continue the present D. M. F. rate of 21 (with 11 teeth extracted) or have a rate of 7 (with one tooth extracted). The average expenditure of approximately ten cents per capita annually will insure this enormous improvement in the dental health of any community."

After an extensive survey of almost all fluoridation projects, E. F. Mackenzie (36), director of Water Examiners, Metropolitan Water Board, Great Britain, made the following statement to the British people: "Further experiments are unnecessary and would only delay the substantial benefits which can be expected from fluoridation of water supplies in this country."

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Skin Experts Decry Foot Fungi Controls

Many of the commonly used methods for preventing athlete's foot are "ineffective and potentially harmful" and "should be discarded," the American Public Health Association has been advised.

The advice came from Drs. Rudolf L. Baer, Stanley A. Rosenthal, Jerome Z. Litt and Hyman Rogachefsky of New York University Post Graduate Medical School and the skin and cancer unit of University Hospital, according to Science Service. It was based on new experiments still going on which are being done under a grant from the Army.

Methods reported to be useless and perhaps harmful include sterilizing articles in and around bathrooms, showers, swimming pools, shoes, socks and the like, and use of pre-swim antiseptic foot baths.

"It is naive," the scientists declared, "to expect that wading for a few seconds through a basin of antiseptic solution would help to prevent the transmission of fungous disease of the feet (athlete's foot). "These stagnating, unhygienic puddles should be abandoned."

The fungi that cause athlete's foot are shed from the feet of many persons both with and without active disease, the studies showed.

Attempts to induce acute attacks by deliberately exposing the feet of 45 persons who did not have the disease failed. These persons had their feet contaminated with fungi from persons who had athlete's foot. They failed to contract the disease up to six weeks later, although during this period fungi were found one or more times on 60 per cent of them.

Contagion, the doctors concluded, plays a "negligible" part in bringing on attacks of athlete's foot. Lowered resistance of the skin, with resulting activation of the fungi already on the feet, is responsible for attacks of the infection.

Survey on Ophthalmic Preparations

Here in a series of five papers presented to the Practical Pharmacy Section at the 1954 A.PH.A. convention, authors weigh problems arising in dispensing ophthalmic prescriptions.

What Ophthalmologists Expect of Pharmacists

Only six out of ten ophthalmologists want pharmacists to filter all solutions involving compounding, say the authors, Robert H. Schleif of the St. Louis (Mo.) College of Pharmacy and Charles C. Rabe, formerly of the College Staff.

PHARMACISTS have often been in doubt about procedures to be followed in preparing ophthalmic solutions. It was for this reason that a survey was conducted in order to determine the opinions of ophthalmologists on such issues as filtration, isotonicity, buffering, and the use of antibacterial agents as preservatives in prescriptions involving compounding.

Questionnaires were mailed to 709 ophthalmologists chosen by random selection from approximately 3,000 certified ophthalmologists listed by the Advisory Board for Medical Specialists. One hundred and thirty-two replies were received, making a 19 per cent response and representing about 4 per cent of the specialists certified in this field.

The first 100 valid replies were used to develop the data presented in this report. Most of the questionnaires not used in the tabulations were either incomplete or were received long after having been distributed and were too late to be included in the results. However, spot checks of valid answers to a number of questions showed that there would have been no significant changes in the over-all results had these remaining replies been used, thus indicating sample stability.

Filtration—Table I shows that 19 of the 100 ophthalmologists answered that they wanted none of the solutions they prescribed filtered as a general routine. Among the 81 who reported that they wanted all or some solutions filtered, 61 preferred the use of filter paper, 9 mentioned cotton as their choice, and two of the respondents indicated a preference for bacteria-retaining filters. Eleven supplied no answer, and 2 gave multiple answers.

Table I—Ophthalmologists Wanting Solutions Filtered

All Solutions	59
Only Certain Types	22
None	19
Total	100

Although the consensus is that filtration of all compounded ophthalmic solutions is considered desirable as a precautionary measure, the response to the question indicated that some ophthalmologists do not favor this procedure.

However, here and in other sections of the report it must be emphasized that the pharmacist should not follow compounding procedures based upon group findings; he should deal with each ophthalmologist on an individual basis.

Preservatives—Illustrated in Table II is the interest shown by ophthalmologists in the use of antibacterial agents as preservatives against microorganism contamination. Seventy-nine of the 100 respondents replied that they prescribed such agents in all or some of their solutions. Of the 21 who reported that they did not prescribe preservatives in any of their solutions, 11 stated that they wanted the pharmacist to add antibacterial agents to all or some prescriptions even though not specified. This indicated that 9 out of 10 ophthalmologists were interested at least to some degree in preventing contamination by microorganisms during the preparation and use of medications.

Table II—Ophthalmologists Prescribing Preservatives

All Solutions	32
Only Certain Types	47
None	21
Total	100

The reasons given and the number of times mentioned by 30 respondents for not using antibacterial agents or for using them in only certain types of solutions were as follows: not necessary, 20; too irritating, 7; incompatibility, 3; sensitivity reactions, 3; pharmacist unfamiliar with the method, 1. Four ophthalmologists gave multiple answers to the question. Twenty-seven supplied no answer to this question.

Although the questionnaire requested the ophthalmologists to explain why they prescribed these agents in only certain types of solutions, the response was so poor that definite conclusions could not be drawn. It would appear that the time factor may have discouraged their going into detail on this issue, as was also the case in succeeding questions.

The listing of antibacterial agents in Table III reflects the preferences of the 90 ophthalmologists who prescribed or wanted the pharmacist to add such agents to their solutions. A number of multiple answers were given, hence the total number of mentions exceeds 90.

Table III—Choice of Antibacterial Preservatives

Benzalkonium Chloride	72
Chlorobutanol	17
Phenylmercuric Nitrate	9
Boric Acid	2
Other	1
No answer	9
Total	110

In answer to a question regarding concentration preferred, 44 preferred benzalkonium chloride in strengths of from 1:5,000 to 1:10,000. Chlorobutanol was preferred in a concentration of 0.5 per cent by 13 of the 17 who gave it as their choice. Four of the nine who mentioned phenylmercuric nitrate indicated a concentration of 1:25,000.

Six respondents added comments to their questionnaires in which they demonstrated an interest in having solutions prepared under aseptic conditions.

Isotonicity—It will be noted in Table IV that nearly one-half of the ophthalmologists replied that they did not prescribe any isotonic solutions involving compounding. However, 24 of the 44 in this group did indicate that they wanted the pharmacist to make all or some of their solutions isotonic even though they had not so specified. Here the pharmacist is faced with the problem of knowing just how far he may proceed when special techniques are involved. It must be reemphasized that each ophthalmologist must be dealt with on an individual basis. It is obvious that the pharmacist must not alter the nature of the prescription unless he has been given the right to do so by the prescriber.

Table IV—Ophthalmologists Prescribing Isotonic Solutions

All Solutions	27
Only Certain Types	29
None	44
Total	100

The reasons given and the number of times mentioned by the 20 ophthalmologists who did not want any of their solutions made isotonic were as follows: irritation is of no great consequence, 10; does not increase therapeutic effectiveness, nine; pharmacists are unfamiliar with the method, five; increases the cost of the prescription, four. Several replies involved multiple reasons.

It was of interest to note that in addition to the five ophthalmologists who replied that they did not want any solutions made isotonic because of pharmacists' unfamiliarity with the method, another nine gave the same reason for specifying that only some of their solutions be made isotonic. The latter group presented a strange problem. Why should an ophthalmologist prescribe any isotonic solutions at all if he feels that pharmacists are not capable of rendering this service? Perhaps the answer lies in the fact that he specifies isotonicity only in those instances where he knows that the prescription will be handled by pharmacists who have demonstrated their abilities in this field.

In answer to a question regarding choice of chemical to be used in making solutions isotonic, sodium chloride was favored over boric acid in a ratio of 4:1.

Buffering—Table V shows that slightly more than one-half of the ophthalmologists reported that they did not prescribe buffered solutions involving compounding. Twenty-six of the 54 in this group answered that they wanted the pharmacist to add buffers to all or some of their solutions even though not specified in the prescription. The over-all picture demonstrated that there was some degree of interest in having solutions buffered by over seven out of 10 ophthalmologists.

The reasons given and the number of times mentioned by the 28 ophthalmologists who did

not want buffers in any solutions involving compounding were as follows: does not increase therapeutic effectiveness, 15; pharmacists are unfamiliar with the method, eight; increases cost of the prescription, three; other reasons, four. Multiple reasons were given on some questionnaires.

Table V—Ophthalmologists Prescribing Buffered Solutions

All Solutions	18
Only Certain Types	27
None	54
No Answer	1
Total	100

In addition to the eight ophthalmologists who reported that pharmacists' unfamiliarity with methods was their reason for not prescribing any buffered solutions, another 11 gave the same reason for prescribing buffers in only certain solutions. It was apparent that a significant number of ophthalmologists were of the opinion that some pharmacists were in need of more training in the preparation of buffered solutions.

The two most frequently mentioned buffers were Gifford's and Phosphate. Trade name buffer vehicles were mentioned by a number of respondents in the eastern and western sections of the nation.

Detailing—While there are certain unfavorable aspects in the findings of this study, pharmacists should be pleased to observe in Table VI that three out of four ophthalmologists reported that they wanted to be detailed on special services the pharmacist could offer them in compounding their prescriptions.

Table VI—Ophthalmologists Wanting to Be Detailed

Yes	77
No	19
No Answer	4
Total	100

In conclusion, the data presented point out ways in which pharmacists can render a more complete service to ophthalmologists and their patients. However, in order to be able to perform these services, pharmacists must adequately prepare themselves and their personnel with basic knowledge that will enable them to do the job efficiently. Further, they must be sufficiently informed to be able to discuss these services when detailing ophthalmologists.

It is evident that colleges of pharmacy are justified in including a coverage of these subjects in their courses in dispensing pharmacy. Also evident is the need for a consideration of these issues in the refresher courses and seminars which they sponsor for practicing pharmacists, many of whom received their education at a time when little or no emphasis was placed on this specialized area of compounding.

Preservatives In Solutions

Where sterility is imperative, sterilization should be carried out by heat or filtration and preservatives depended on only for maintenance of sterility, conclude the authors here. They are William M. Heller, University of Arkansas, Dean Noel E. Foss, Donald E. Shay and C. T. Ichniowski, all of the University of Maryland faculty.

THE AWAKENING of ophthalmologists and manufacturing pharmacists (1, 2) to the problem of sterility has resulted in a reinterpretation of the Federal Food, Drug, and Cosmetic Act (3). FDA now regards unsterile eye solutions as adulterated and misbranded. Furthermore, FDA declares that eye solutions "packed in multiple-dose containers should contain one or more suitable and harmless substances that will prevent the growth of microorganisms."

At present, this regulation legally affects only pharmaceutical manufacturers and repackers of ophthalmic solutions, but morally all practicing pharmacists should be affected.

The problem is twofold: to prepare a sterile solution and to maintain sterility.

It has been proposed that eye solutions be freed of living microorganisms by physical methods such as the use of heat, mechanical filtration, and ultraviolet light. From the standpoint of the dispensing pharmacist who is called upon to compound small amounts of eye solutions extemporaneously, the most practical method of achieving sterility is by the use of bactericidal and fungicidal chemicals.

To prepare ophthalmic solutions which are "self-sterilizing," one must introduce a chemical

which (a) is effective against the common fungal and bacterial contaminants of such solutions, especially *Pseudomonas aeruginosa*, which causes one of the most severe types of corneal ulcers and usually results in loss of the eye; (b) is quickly effective throughout the *p*H range commonly used in eye solutions, that is, *p*H 4.5 to 9.0; (c) is compatible with the more commonly used ophthalmic buffers and medicaments; and (d) is nonirritating to the tissues of the eye at the concentration used.

13 Chemicals Investigated

Method—Thirteen chemicals were investigated to determine their abilities to sterilize eye solutions. The method used was a slight modification of that of McPherson and Wood (4), the most stringent test yet proposed for this purpose. We have determined whether 3.0 cc. of the preserved eye solution will kill all the contaminants which normally enter during the compounding of an eye solution with chemically clean, but not sterile, equipment; plus the contaminants which might enter through opening and closing of the container during use; plus one drop of a 24-hour culture in trypticase-dextrose broth of one of the following organisms: *Escherichia coli*, *Pseudomonas aeruginosa*, or *Staphylococcus aureus*. This 3.0 cc. of highly contaminated eye solution was tested for viable organisms after 2, 5, 10, 15, and 30 minutes.

The results? Chemicals not effective against all the contaminants within 30 minutes include: Emcol E-607 (Emulsept), a quaternary ammonium compound, in concentrations up to 1:2,000; thimerosal (Merthiolate) in concentrations up to 1:1,000; oxyquinoline sulfate, in concentrations up to 1:500; methyl and propyl paraben combinations as concentrated as 0.2 per cent (0.18 per cent methyl and 0.02 per cent propyl); and saturated solutions of the bis-phenols, hexachlorophene (G-11, Sindar), dichlorophene (G-4, Sindar), and bithionol (Actamer) buffered to *p*H 7.4 and 8.5. The bis-phenols and chlorobutanol were also solubilized with polysorbate 80. Although more concentrated solutions of the antibacterial agents were obtained, the polysorbate 80 very greatly reduced their bactericidal properties.

Chemicals found consistently effective within ten minutes contact included benzalkonium chloride (Zephiran Chloride), 1:10,000 and 1:5,000, benzethonium chloride (Hyamine 1622), 1:2,000; phenylmercuric nitrate 1:2,000, and benzyl alcohol, 3 per cent. Less effective but still bactericidal within 30 minutes contact were phenylethyl alcohol, 1.5 per cent, and chlorobutanol, 0.75 per cent.

Since it would be desirable to add the antibacterial agent to stock solutions of the commonly used buffers, these most promising agents were tested in buffering solutions recommended by Gifford (5), Sorensen (6), Palitzsch (6), and Hind and Goyan (6). These preserved, buffered solutions were autoclaved at 15 psi. and 121° C. for 15 minutes to determine the effects of autoclaving on the preservatives.

To determine the effect of selected medicaments on the antibacterial action of the preservative, tests were made on both freshly prepared and ten-month-old solutions of the following drugs in vehicles recommended by Hind and Goyan (6, 7): atropine sulfate, 1 per cent; eucatropine hydrochloride, 5 per cent; homatropine hydrobromide, 1 per cent; pilocarpine hydrochloride, 2 per cent; ephedrine sulfate, 3 per cent; tetracaine hydrochloride, 0.5 per cent; and physostigmine salicylate, 0.5 per cent.

Zinc sulfate, 0.25 per cent, was tested in a vehicle recommended by Martin and Mims (8) and methylcellulose in a vehicle recommended by Mims (9). Fluorescein sodium, 2 per cent, was prepared in a phosphate buffer solution using an excess of sodium bicarbonate to convert the fluorescein to the sodium salt.

Irritation studies on rabbit eyes were carried out on solutions of the preservatives in distilled water and in the above-mentioned vehicles according to the method of Draize, Woodard and Calvery (10).

Results Outlined

Results of all these tests showed that benzyl alcohol, 3 per cent, was most effective bacteriologically, was most compatible with the buffer solutions and medicaments used, but was judged too irritating in the rabbit eye. Benzethonium chloride 1:2,000 and phenylmercuric nitrate 1:2,000 were also judged too irritating. Chlorobutanol, 0.75 per cent; phenylethyl alcohol, 1.5 per cent; and benzalkonium chloride 1:5,000 are only slightly irritating in the rabbit eye. However, it must be remembered that this test measures injury, not pain. Chlorobutanol and benzalkonium chloride have been used clinically in these concentrations. Phenylethyl alcohol, 1.5 per cent, has not.

Solutions of phenylethyl alcohol, 1.5 per cent, develop a flocculent precipitate after standing several weeks, but the precipitate apparently has no effect on the germicidal powers of the pre-

(Continued on page 36)

NEW PRESCRIPTION PRODUCTS

All items on which information has been received in the past thirty days are reported here. Manufacturers are urged to send details of their new products as early as possible, so that pharmacists through these pages will have full information at the same time, or even before, products are detailed to the physician. For inclusion in this free editorial department, send descriptive literature to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, *2215 Constitution Avenue, N. W., Washington 7, D. C. Where possible, all descriptions should follow the style shown on these pages.*

Abten Tablets, 1 mg. and 2 mg.

Description: Each pink tablet contains 1 mg. and each light green tablet contains 2 mg. of *Rauwolfia serpentina* alkaloids (as powd. whole root).

Indications: For treatment of essential hypertension.

Administration: Two to four pink tablets or one or two green tablets daily.

Form Supplied: Bottles of 100 and 1,000.

Source: Paul Maney Laboratories, Inc., Cedar Rapids, Iowa.

Alflorone Acetate Topical Ointment

Description: An ointment containing 0.1 or 0.25 per cent of fluorohydrocortisone acetate.

Indications: Skin conditions responding to hydrocortisone ointment will respond to Alflorone acetate ointment in one-tenth the concentration.

Administration: Locally.

Form Supplied: Both the 0.1% and 0.25% ointments are presently available in 5-Gm. tubes, with 15-Gm. and 30-Gm. tubes planned for early marketing.

Source: Sharp & Dohme, Philadelphia, Pa.

Ansolysen Injection

Description: Each cc. of solution contains 10 mg. of pentolinium tartrate, with 0.5% chlorobutanol as preservative.

Indications: For management of hypertension.

Administration: Initial dose, subcutaneously or intramuscularly, should not exceed 3.5 mg.

Form Supplied: 10-cc. multiple-dose vials.

Source: Wyeth Laboratories, Philadelphia, Pa.

Cyesicaps Capsules

Description: Six capsules supply: calcium, 600 mg. (calcium lactate, 3720 mg.); iron ($FeSO_4$) 15 mg.; intrinsic factor concentrate, 1.5 mg.; vitamin A, 6000 U. S. P. units; vitamin D, 400 U. S. P. units; thiamine mononitrate (B), 1.5 mg.; riboflavin (B_2), 3 mg.; niacinamide, 15 mg.; vitamin B_{12}, 6 mcg.; ascorbic acid (C), 150 mg.; Folvite folic acid, 2 mg.; pyridoxine HCl (B_6), 6 mg.; calcium pantothenate, 6 mg.; vitamin K (menadione), 1.5 mg.; vitamin E (as tocopheryl acetate), 61 U.; iodine (as KI), 0.1 mg.; fluorine (as CaF_2), 0.09 mg.; copper (as CuO), 0.9 mg.; potassium (as K_2SO_4), 5 mg.; manganese (as MnO_2), 0.3 mg.; magnesium (MgO), 0.9 mg.; molybdenum (as $Na_2MoO_4 \cdot 2H_2O$), 0.15 mg.; and zinc (as ZnO), 0.5 mg.

Indications: Prenatal phosphorus-free supplement to the diet during pregnancy and lactation.

Administration: Six capsules daily.

Form Supplied: Bottles of 100 and 1,000.

Source: Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

Damital Tablets

Description: Each tablet contains: *d*-amphetamine sulfate, 2.5 mg.; pentobarbital sodium, 1/4 gr.; acetophenetidin, 2 1/2 gr.; acetylsalicylic acid, 3 1/2 gr.

Indications: To relieve pain and anxiety, nervous tension and depression.

Administration: Orally, 1 or 2 tablets two or three times a day, as needed.

Form Supplied: Bottles of 100 and 1,000.

Source: U. S. Standard Products Co., Woodworth, Wis.

Florinef Lotion and Ointment

Description: The lotion is an aqueous suspension of 0.1 or 0.2 per cent of fluorohydrocortisone. The ointment contains 0.1 or 0.2 per cent of fluorohydrocortisone in an oleaginous base (Plastibase).

Indications: Inhibit inflammatory reactions to bacterial, allergenic, and chemical agents, and have antipruritic action. Florinef has about 10 times the activity of hydrocortisone in these conditions.

Administration: Locally.

Form Supplied: Lotion—15-cc. plastic bottles. Ointment—5-Gm. and 20-Gm. tubes.

Source: E. R. Squibb & Sons, New York, N. Y.

Loten-Encote Tablets

Description: Each enteric coated tablet contains: *Rauwolfia serpentina* alkaloids, 0.75 mg. (approx. 100 mg. of powd. whole drug); dihydroxypropyl theophylline, 100 mg.; and rutin, 20 mg.

Indications: Hypotensive agent for treatment of certain nonmalignant types of hypertension.

Administration: Only one to three tablets during a 24-hour period.

Form Supplied: Bottles of 100 and 1,000.

Source: Paul Maney Laboratories, Inc., Cedar Rapids, Iowa.

Oxsoralen Capsules and Lotion

Description: Each capsule contains 10 mg. of 8-methoxypsoralen (ammoidin). The lotion for topical treatment contains 8-methoxypsoralen 1% in a vehicle of acetone, alcohol and propylene glycol.

Indications: Orally or in combination with topical treatment, or topically, for idiopathic vitiligo (skin disease with formation of smooth, light-colored patches). Aids in repigmentation. *Contraindications:* The capsules should not be taken in presence of hepatic insufficiency or diabetes mellitus. Oxsoralen has no effect on leucoderma associated with destruction of melanocytes which occurs following severe burns and trauma.

Administration: One to two capsules two times daily about one hour prior to exposure to sunlight. Children—1 to 6 years, one capsule daily; 6 to 12 years, one to three capsules daily as above. Expose the affected skin area to sunlight for 5 minutes daily, increasing the time slowly to 30-minute periods. Apply the lotion once weekly to only a few areas and expose to sunlight for not more than 1 minute. This treatment should be carried out only by the attending physician.

Form Supplied: 10-mg. capsules; 1% lotion.

Source: Paul B. Elder Co., Bryan, Ohio.

Prydon Spansule Capsules, 0.4 mg. and 0.8 mg.

Description: Each sustained release capsule contains: hyoscyamine sulfate, 0.305 mg.; atropine sulfate, 0.06 mg.; and scopolamine HBr, 0.035 mg. in the 0.4-mg. size; and double the amounts of the same ingredients in the 0.8-mg. size.

Indications: Anticholinergic therapy for peptic ulcer, hypersecretion, and gastrointestinal spasm.

Administration: One capsule orally each 10 to 12 hours.

Form Supplied: Both sizes in bottles of 30 Spansule capsules.

Source: Smith, Kline & French Laboratories, Philadelphia, Pa.

Prydonnal Spansule Capsules

Description: Each sustained release capsule contains: phenobarbital, 65 mg. (1 gr.); hyoscyamine sulfate, 0.305 mg.; atropine sulfate, 0.06 mg.; and scopolamine HBr, 0.035 mg.

Indications: Anticholinergic therapy with sedation for peptic ulcer, hypersecretion, and gastrointestinal spasm.

Administration: One capsule orally each 10 to 12 hours.

Form Supplied: Bottles of 30 Spansule capsules.

Source: Smith, Kline & French Laboratories, Philadelphia, Pa.

Raufia Tablets

Description: Each light orange, enteric-coated tablet contains: mannitol hexanitrate, 30 mg.; *Veratrum viride*, 100 mg.; rutin, 20 mg.; and *Rauwolfia serpentina* alkaloids, 0.75 mg. (approx. 100 mg. of powd. root).

Indications: In the treatment of essential hypertension.

Administration: One tablet three times during a 24-hour period.

Form Supplied: Bottles of 100 and 1,000.

Source: Paul Maney Laboratories, Inc., Cedar Rapids, Iowa.

Romilar Hydrobromide Tablets and Syrup

Description: Each double-scored tablet and each 4 cc. of syrup contains 10 mg. of dextromethorphan HBr.

Indications: Antitussive. The nonnarcotic,

nonanalgesic, and nonconstipating dextromethorphan HBr is effective in a 1 to 1.5 ratio compared with codeine.

Administration: Orally, as required.

Form Supplied: Tablets in containers of 20, 100, and 500. Syrup in bottles of 4 oz., 16 oz., and 1 gal.

Source: Hoffmann-La Roche, Inc., Nutley, N. J.

Tyzine Nasal Solution

Description: A solution containing tetrahydrozoline HCl 0.1%.

Indications: Nasal decongestant.

Administration: Drop or spray into nostril.

Form Supplied: 1-oz. bottles with plastic dropper, 1-oz. spray bottles containing 15 cc., and 1-pint bottles.

Source: Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc.

Other New Products

(Chemicals, clinical trial drugs, diagnostic aids, and equipment for the retail and hospital pharmacy)

Aureomycin Calcium Cream

A cream containing 30 mg. of water-insoluble chlortetracycline calcium per Gm. (3%), intended for the prevention and treatment of infection in minor cuts and abrasions, has been marketed by *Lederle Laboratories Division, American Cyanamid Company.* Zinc oxide is also incorporated in the water-soluble cream base. The cream is applied topically, preferably on sterile gauze once or twice a day.

Aureomycin Powder (Vet.)

A powder containing in each Gm.: chlortetracycline, 20 mg.; and benzocaine 1%, has been made available by *Lederle Laboratories* in 35-Gm. plastic bottles for veterinary use in the treatment of pink eye (keratitis) and superficial skin wounds.

Bredative-DHC Tablets

Addition of dihydrocodeinone bitartrate to their Bredative tablet containing sodium pentobarbital and phenobarbital has been announced by *George A. Breon & Company.* Bredative-DHC tablets are supplied in bottles of 500.

Cremomycin Suspension

A fruit-flavored suspension containing neomycin and Sulfasuxidine (succinylsulfathiazole) with kaolin and pectin has been marketed by *Sharp & Dohme* as an antidiarrheal preparation. Cremomycin can be included in an infant's formula. It is available in 8-oz. bottles.

Gastralme Liquid

A suspension containing in each 8 cc.: calcium carbonate, 0.7 Gm.; magnesium trisilicate, 0.1 Gm.; and dried aluminum hydroxide gel, 0.2 Gm., has been marketed by *Meyer Chemical Co., Inc.* Gastralme is recommended in doses of 8 cc. with ulcer regime and for hyperacidity. It is supplied in pint bottles.

Histalog, 50 mg. Ampuls

Each ampul contains 50 mg. of 3-beta-aminoethylpyrazole .2HCl (histamine analog) in 1 cc. of solution: the average dose intramuscularly or subcutaneously. The minimal dose is 0.5 mg. per Kg. of body weight. Histalog is recommended to replace histamine acid phosphate in testing gastric secretory capabilities because it exhibits equal action with fewer side-effects. Histalog, 50 mg., is supplied by *Eli Lilly and Company* in packages of six 1-cc. ampuls.

Iberol Filmtab Tablets

The daily dose of two Iberol Filmtab tablets contains, in addition to the vitamin B factors: ferrous sulfate, 210 mg.; and vitamin B_{12} with intrinsic factor concentrate, 1 U.S.P. oral unit, for antianemia therapy. The product is supplied by *Abbott Laboratories* in bottles of 100, 250, and 1,000 tablets.

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servative in the solutions. Otherwise, this agent is generally compatible with the buffers and medicaments tested.

Chlorobutanol is compatible with most of the medicaments used in this study. However, it is deactivated by alkaline solutions and by autoclaving.

Where compatible, benzalkonium chloride 1:5,000 is the most effective, nonirritating, "self-sterilizing" agent for eye solutions. It is easily compounded. It forms a precipitate with the fluorescein sodium solution and bacteriological testing of the filtrate showed that the antibacterial activity of the solution is destroyed. The methylcellulose vehicle decreased the effectiveness of benzalkonium chloride against *Ps. aeruginosa*. Lowering the *p*H of the solution to 5 or less decreases the effectiveness of benzalkonium chloride against *S. aureus*. Boric acid, in increasing concentrations, exhibits increasing inhibition although the 1:5,000 concentration of benzalkonium chloride is still effective within 30 minutes in 2.2% boric acid solutions.

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Sources of Bacterial Contamination in Compounded Solutions

The authors, Charles C. Rabe, Robert H. Schleif, Phyllis M. Sarich, and George F. Reddish, all of the St. Louis (Mo.) College of Pharmacy faculty at the time of the study, found the greatest source of bacterial contamination in an eye solution prepared by 25 retail pharmacists was the method of storing distilled water at the prescription counter.

THIS PROJECT is a study of the sources of bacterial contamination in ophthalmic solutions compounded in retail pharmacies. It does not include an evaluation of preservatives or special compounding methods. The use of antibacterial agents in rendering such solutions sterile has been described by Goldstein (1) and Hind and Szekely (2) and the application of aseptic techniques has been demonstrated by Parrott, Wurster, and Busse (3).

To accomplish the purpose of this study, a compounded prescription containing one fluidcunce of one per cent atropine sulfate in distilled water was collected from twenty-five pharmacies in the St. Louis area, and a one fluidounce sample of the distilled water used in the compounding was obtained in a sterilized bottle provided for the purpose. In each instance the pharmacist was asked to fill the prescription in exactly the same manner employed for physicians' patients. The survey worker observed the compounding procedures in almost every case in order to accumulate background data for correlation with the final results of the investigation. The sources of the samples included prescription-type and general drug stores in both the chain and independent categories. They were chosen on the basis of representativeness and anticipated cooperation in preparing the prescription according to instructed procedure.

Experimental—One-tenth cc. and 1.0-cc. samples were taken from the atropine solution and the distilled water and plated in nutrient agar within five hours after having been collected. The agar plates were incubated at 37° for two days. Total plate counts of less than five colonies per cc. were regarded as being of no consequence and were recorded as negative for the purposes of this study. Counts of such low numbers could easily have been the result of contamination during platings, and even if attributed to the pharmacist would not show a high degree of contamination from a quantitative point of view. The results are shown in Table I.

Samples were also taken from ten of the atropine solutions and the distilled water and introduced into fluid thioglycollate medium within five hours after having been collected, and the remaining samples were tested after one week. These tubes were incubated at 37° for seven days. The thioglycollate tests showed results in agreement with the tests on nutrient agar as shown in Table I.

It is evident from the table that 10 of the 25 samples of atropine solution were contaminated with bacteria, seven of which contained very

large numbers of microorganisms. The bacterial counts in the finished atropine solutions ranged from 200 to 500 per cc. in three samples and from 3,000 to over 10,000 (TNTC) per cc. in seven of the samples. In eight of the 10 samples, the distilled water used was the apparent source of the contaminants. The remaining 15 samples were sterile, as were also the samples of distilled water from which they were prepared.

Results—The heavy contamination found in the two prescriptions filled by the first three pharmacies shown in Table I confirmed the well-accepted fact that stock solutions of alkaloidal salts constitute a medium for growth of microorganisms. The first drug store prepared its stock solution of atropine sulfate in one-pint quantities, the second in four-fluidounce amounts, and the third in two-ounce quantities. The latter pharmacy is the busiest of the three, yet prepares a smaller volume of stock solution in order that it can be prepared at frequent intervals. This helps to explain the fact that its prescription was satisfactory in this evaluation.

Pharmacies numbered 4 through 10 also kept their prescription-use distilled water in overhead, siphon-type containers. Five of them used five-gallon bottles, one used a gallon size, another used a liter container. It is of interest to note that the prescriptions compounded by six of these seven pharmacies were contaminated, and in five cases the water was the major contributing factor.

Of particular interest is the fact that none of the prescriptions collected from the ten pharmacies numbered 11 through 20 that used original half-gallon bottles of distilled water at the work counter showed significant contamination. However, five of the ten did show counts ranging from 1 to 5 organisms per cc. The point to be made is that these pharmacies used the original half-gallon bottles as dispensing units and poured directly from them in compounding procedures.

In the three pharmacies number 21 through 23 the distilled water was kept in pint stock bottles filled from half-gallon containers. One of these three showed a very marked degree of contamination in both the prescription and the water; the other two were satisfactory. In the case of the contaminated product it was observed that the prescription was filled using the last of the water in the stock bottle. Subsequent investigation revealed that this pharmacist cleansed

Table I—Sterility Tests on Atropine Solution and Distilled Water

No. of Pharmacy	Agar Plate Counts per cc. Atropine Soln.	Agar Plate Counts per cc. Dist. Water	Fluid Thioglycollate Atropine Soln.	Fluid Thioglycollate Dist. Water	Size of Dist. Water Bottle
1	6412[a]	0	+	0	5-gal. siphon
2	7168[b]	TNTC[d]	+	+	5-gal. siphon
3	0[c]	0	0	0	5-gal. siphon
4	216	0	+	0	5-gal. siphon
5	448	TNTC	+	+	5-gal. siphon
6	512	1600	+	+	5-gal. siphon
7	0	0	0	0	5-gal. siphon
8	2898	TNTC	+	+	5-gal. siphon
9	TNTC	TNTC	+	+	1-gal. siphon
10	TNTC	TNTC	+	+	1-liter siphon
11	0	0	0	0	1/2 gal.
12	0	0	0	0	1/2 gal.
13	0	0	0	0	1/2 gal.
14	0	0	0	0	1/2 gal.
15	0	0	0	0	1/2 gal.
16	0	0	0	0	1/2 gal.
17	0	0	0	0	1/2 gal.
18	0	0	0	0	1/2 gal.
19	0	0	0	0	1/2 gal
20	0	0	0	0	1/2 gal.
21	0	0	0	0	Pint
22	TNTC	TNTC	+	+	Pint
23	0	0	0	0	Pint
24	0	0	0	0	Closed-circuit from still to dispensing container
25	3840	1526	+	+	Buffer sol. as vehicle

[a], [b], [c] = stock solution dispensed. [d] TNTC = too numerous to count. + = growth; 0 = no growth.

the stock bottle less regularly than did the other two pharmacists.

An ideal arrangement for source and storage of distilled water at the prescription counter was noted in visiting pharmacy number 24. A closed-circuit system was used in which the water runs directly from the still into the dispensing unit. Only a one-day supply of water was prepared at a time, any surplus at the end of the day being discarded. Additional precaution was taken through daily cleansing of the glass tip at the end of the dispensing unit.

Only one pharmacist, number 25, used a buffer solution as a vehicle for the atropine prescription. Both the buffer solution and the prescription showed evidence of considerable contamination. The buffer was of the phosphate type and was prepared in liter quantities, a supply sufficient to last for some weeks.

It is evident from the foregoing data that contamination was closely associated with the type of distilled water dispensing unit used at the prescription counter. Those pharmacists using the original half-gallon bottles were able to prepare atropine solutions of good quality. On the other hand, the overhead siphon-type container with rubber and glass tubing seemed to be a strong contributing factor in the contamination of the prescriptions filled by the stores using this type of water supply.

Other Factors—Exposure to air during compounding did not have an appreciable effect on the degree of contamination, at least in those ten cases in which the distilled water was of good quality and the pharmacist filtered the atropine solution. In the other six solutions which were subjected to filtration, it was not possible to come to a positive conclusion because the water itself was highly contaminated.

Other sources of contamination may be discounted to a considerable extent. Samples of atropine crystals and powder taken from two different containers showed the presence of but few bacteria. Utensils, if properly cleaned, provide no nutrient material for microorganisms; therefore, it is doubtful whether these instruments can contribute significant contamination. Prescription dropper bottles are likewise not a serious threat. Manufactured under great heat and stoppered under sanitary conditions, they are referred to as sterile containers by at least one manufacturer.

Complete identification of the microorganisms found during these tests was not within the scope of this study. However, cultures taken from the agar plates were grown on various media and microscope slides were prepared and examined. No staphylococci were detected and tests in lactose broth did not reveal the presence of gas-forming organisms, thus ruling out the coliform bacteria. Two samples were found to contain *Sarcina lutea*, but none of the various cultures showed the production of pigment characteristic of *Ps. aeruginosa*.

Conclusions—While the limited identification tests did not reveal the presence of specific pathogens, the contamination of the prescriptions in this study should be looked upon as being of considerable consequence. Even though the organisms may be nonpathogenic they may produce substances that irritate the eye. Further, their very presence shows that there is contamination and that pathogens, if present in and around the prescription department, stand an excellent chance of entering the prescription through the same channels as the nonpathogens.

The results of this survey suggest that the pharmacist take precautions to protect the quality of the distilled water used in compounding prescriptions. It is recommended that he keep a separate stock bottle of boiled distilled water for compounding eye solutions, and that unused portions be discarded and replaced at frequent intervals. If the prescriber permits him to do so, he should also add one of the acceptable antibacterial agents to the prescription. It is obvious that this will provide greater protection after the prescription is placed in the hands of the patient.

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Methylcellulose Dispersions

Viscosity of methylcellulose dispersions generally increases as the pH increases, conclude authors W. J. Campbell, Dean H. M. Burlage, and W. R. Lloyd, all of the University of Texas.

METHYLCELLULOSE has been used in eye solutions to lend a satisfactory texture to the finished product (1, 2, 3). It can be used in an ophthalmological solution to thicken the solution and to aid in the suspension of the active ingredients.

Methylcellulose was originally studied in eye solutions as a medium for contact lenses (2). It was useful in this application as it formed a thick solution that stayed in the eye. It was also reported to have about the same refractive index as the cornea (2). Fried (3) studied 0.5 per cent solutions of methylcellulose 400 as substitute tears with considerable success.

Swan (1) reported that methylcellulose 4000 in a 1.0 per cent solution can provide a nonirritating and chemically inert solution that can be sterilized by boiling, and that solutions containing only pure methylcellulose do not support bacterial growth. Prolonged use in rabbits produced no signs of irritation, and there were no cases of hypersensitivity noted in 100 patients receiving methylcellulose as a medication.

The research reported in this paper is a study of the mutual effects of *p*H and viscosity in methylcellulose dispersions. As typical of the buffers used in ophthalmic preparations, the Gifford, Sorensen, and a modified Palitzsch systems, and a 0.356 *M* boric acid solution were employed. Three types of methylcellulose, 400, 1500, and 4000, were used in the study. Unbuffered dispersions of methylcellulose 4000 from 0.20 per cent to 2.00 per cent w/v, and equivalent viscosities of methylcellulose 1500 from 0.53 per cent to 5.33 per cent w/v; and methylcellulose 400 from 2.0 per cent to 20.0 per cent w/v were prepared and included in the viscosity studies. Dispersions of methylcellulose 4000 and 1500; methylcellulose 1500; and 400; and methylcellulose 4000, 1500, and 400 at representative viscosities were also included.

The Sorensen buffer was used over the range of *p*H from 6.0 to 8.0; the Gifford over the range 5.0 to 9.0 and the modified Palitzsch over the range 7.0 to 8.5 (4). The 0.356 *M* boric acid yielded a *p*H of 5.0. The composition of the buffered dispersions is summarized in Table I. Each concentration of methylcellulose was prepared at each of the *p*H values listed, and control buffers were prepared at each *p*H. A total of 236 dispersions were prepared.

Experimental—Each dispersion or solution was examined visually and tested for *p*H and/or viscosity, where applicable, at monthly intervals. The study was carried out for six months. Storage was at room temperature.

*p*H Determinations: *p*H was determined with a Leeds and Northrup *p*H meter, No. 7662, using glass and calomel electrodes. The electrodes were immersed in the methylcellulose dispersions for a period of 30 minutes to allow equilibrium to be achieved before readings were taken.

Viscosity: Viscosity was determined at 30° C. using a Cannon-Fenske viscosimeter (5). An average of 3 readings was taken for each sample.

Storage: The samples were stored in brown, "spacesaver" bottles at room temperature. *p*H and viscosity measurements were made at monthly intervals, distributed equally on the working days of the month.

Results—No attempt will be made to report the complete results of the experimental work. A complete compilation of the data is available from the library of the University of Texas (6).

Effect of Methylcellulose on *p*H: Only slight variations of 0.1 to 0.2 unit were observed in the *p*H of the various dispersions. Considering the viscosity of the dispersions, such variations are well within experimental error.

Effect of *p*H on Viscosity: Methylcellulose dispersions were observed to exhibit higher viscosities as the *p*H was increased. This tendency was by no means uniform throughout the study, but was generally true. In most cases in both buffered and unbuffered dispersions, viscosity decreased over the six-month storage period.

Effect of Total Solids on Viscosity: The Sorensen buffer preparations showed lower viscosities than comparable dispersions with other buffers. Inspection of the formulas for the preparations showed that this buffer system contained less total dissolved solids as compared to the other systems. To further investigate this salt effect, 1% dispersions of methylcellulose 4000 were prepared with varying amounts of sodium chloride in solution. The viscosities of these dis-

Table I—Composition of Buffered Methylcellulose Dispersions

MeCel Type	Conc., % W/V	Buffer pH			
		Gifford	Palitzsch	Sorensen	Boric Acid
4000	2.0	5.0	7.0	6.0	5.0
4000	1.0	6.0	7.5	6.5	
4000	0.2	6.5	8.0	7.0	
		7.0	8.5	7.5	
1500	2.67	7.5		8.0	
1500	0.53	8.0			
		9.0			
400	2.00				

Table II—1 Per Cent Methylcellulose 4000 with Sodium Chloride

Per Cent NaCl	Viscosity in Centipoises at Ten Days	Viscosity in Centipoises at Forty Days
0.9	116	118
1.0	112	116
1.1	114	118
1.2	120	122
1.4	124	124
2.0	261	341
3.0	685	720

NOTE: With 4.0, 5.0, 7.0, 8.0, and 10.0% solutions of NaCl, gels were obtained.

persions are shown in greater detail in Table II.

Concentrations of sodium chloride of 1.4 per cent or less have little effect on the viscosity of a 1 per cent dispersion of methylcellulose 4000. As the concentration of sodium chloride increases above this value, the viscosity increases rapidly. Mehta (7) postulates that the disturbance is a function of the affinity for water shown by the various inorganic salts and that it is the result of active competition for water as a solvent.

Thus, methylcellulose in buffered solutions does not appear to interfere with the buffering action of the systems studied.

Inorganic salts, such as sodium chloride, in concentrations of the order of 0.9–1.4 per cent will not bring about a great change in the viscosity of 1 per cent methylcellulose dispersions at temperatures less than 25° C. However, there is a critical concentration around 2 per cent in the case of sodium chloride beyond which serious competition for the available water present will cause major disturbances in the viscosity. When the methylcellulose concentration is greater than 1.0 per cent, the critical concentration of salts is correspondingly lowered.

Concentrations of inorganic salts greater than 0.5 per cent may cause inordinate sensitivity of methylcellulose dispersions toward temperature changes or the addition of soluble salts. When buffered methylcellulose dispersions are used as vehicles for the extemporaneous compounding of ophthalmic preparations, the methylcellulose may be precipitated on the addition of the medicinal agent. A buffer low in total salt concentration such as the Sorensen system is desirable from this standpoint.

The viscosity of methylcellulose dispersions generally increases as the *p*H increases.

Dispersions of methylcellulose containing an excess of water, buffered or unbuffered, gradually decrease in viscosity. High temperatures, above 25–30° C., reverse this trend.

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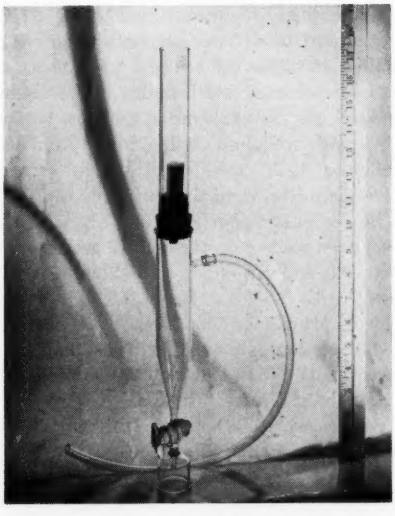
New Sterile Dispenser Introduced

The author, Wesley F. Johnson, a candidate for Pharm. D. at the University of Southern California, suggests a new device for dispensing sterile ophthalmic solutions.

PHARMACY has seldom been challenged as to the efficacy of its extemporaneous preparations. After several recent reports (1, 2, 3) had been recorded in the literature concerning the



contamination of ophthalmic solutions, the Federal Food and Drug Administration has proceeded to require all manufacturers to guarantee the sterility of their ophthalmic solutions (4). Simultaneously the Council on Pharmacy and Chemistry of the American Medical Association decided that sterility should be a contingency for Council-accepted ophthalmic preparations (5). The pharmacist, therefore, has a moral, if not legal,

obligation to prepare extemporaneous ophthalmic solutions so as to insure their sterility.

At the 1953 A.PH.A. convention, Parrott, Wurster, and Busse presented the "Steri-Rx-Chamber" (6). Their apparatus is excellent for preparing sterile solutions. However, the size of the instrument and the space required make it impractical for use in the average retail pharmacy. The economy of installation also encourages us to seek other methods. In an attempt to correct these drawbacks, we are presenting a device for sterilizing ophthalmic solutions that is simple in design, occupying but four square inches of desk space, and based on sound bacteriological technique.

In preparing ophthalmic solutions, three factors must be considered: 1. In some cases pain can be minimized by using buffered and isotonic solutions; 2. stability can be enhanced by using anti-oxidants; 3. sterility can be obtained and maintained by using sterilizing techniques and preservatives. We are limiting our discussion to obtaining sterility.

Our technique is based on cold sterilization, Process "F" of the U. S. P. and N. F., viz., the removal of bacteria by filtration. Probably the best filtering medium, to date, is of the microporous porcelain type. This medium is quite inert and preferred because its adsorptive powers and electrical charge are negligible. It is also resistant to heat (up to 2400° F.) and all solutions that do not attack silica.

The grade of microporous porcelain that is most useful for general bacteriological filtration or sterilization has a bubbling pressure of 25 lbs./sq. inch, corresponding to a maximum pore size of 0.85 micron. In our work we have used the Selas laboratory filtration and sterilization unit of 02 porosity designation which is recommended for general bacteriological filtration and sterilization. The filter element used is $^5/_8$ inch in diameter and one inch long (Catalog No. VFA-51-02).

Sterilized By Filtration

The filtration unit sits on top of a device (Pat. applied for) for measuring and dispensing filtered solutions. We will refer to this as the "Dispensing Filter Flask." Figure 1 shows the flask in combination with a bacterial filter unit. The side arm, containing a cotton plug, leads to the suction apparatus.

The stop-cock, as illustrated, is of the ground-glass type. The solution delivery outlet has the benefit of a hood which serves as a dust shield. The calibrations serve to measure the liquid collected. The flask is constructed of a type of glass that can be sterilized by steam under pressure.

After the flask and filter unit have been sterilized, they are joined and the suction outlet is connected to suitable apparatus. The solution to be sterilized by filtration is poured into the top chamber of the filter unit. The pressure within the flask is reduced by opening the cock or removing the pinch clamp leading to the suction source. The suction is interrupted when the required solution is collected. When the differential pressure reaches equilibrium, the delivery stopcock is opened and the solution delivered by way of the delivery outlet into a previously sterilized bottle or other receptacle. The dust shield protects the solution from contamination with airborne organisms.

Procedure Outlined

Procedure for Operation—The flask and filter unit are wrapped separately in cloth or aluminum foil. They are autoclaved along with a supply of loosely stoppered dropper bottles. (Procedures for preparing the dropper bottles are adequately outlined in the work of Parrott, *et al.*) An 8-quart pressure cooker provides an excellent, inexpensive autoclave for the average pharmacy. After sterilization the flask and filter unit are quickly assembled. The flask has a 60-cc. capacity. The prescription should be prepared in a conical graduate and then poured into the filter chamber. As the solution is being filtered, the pharmacist has time to prepare his label and affix it to the dropper bottle. In less than two minutes the solution will have been completely filtered and ready for delivery into the prescription bottle (previously sterilized). Three or four 1-ounce portions of water are sufficient to cleanse the filter and prepare it for the next prescription to be filtered.

The Selas Corporation recommends the following procedure for chemical cleaning of the filter element: 1. Soak the filter element in concentrated nitric acid or standard dichromate cleaning solution for a period of at least 6 hours, preferably overnight. 2. Flush thoroughly with distilled water until acid-free.

How often the filter should be subjected to chemical cleaning is determined by how much it is used. Some authors believe that after 500 cc. have been filtered, the element should be cleaned chemically.

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FROM THE SECRETARY'S DIARY FOR DECEMBER, 1954

2nd The Military Surgeons Convention now completed and today a conference with Assistant Secretary Bradshaw Mintener of the Department of Health Education and Welfare who is much concerned with appropriations for the Food and Drug Administration, among other duties in this highly important Cabinet post.

3rd All of this day in the annual meeting of the National Drug Trade Conference which was somewhat unusual in that it indulged in some self-examination of its procedures and policies and came up with the idea that it can make itself more useful by rotating officers and discussing subjects on which it may not be able to agree but can nevertheless learn the views of conferees, especially with regard to controversial problems.

7th Sorry to miss the A.P.M.A. meetings in New York early this week but finding it necessary to work continuously on the status of property adjoining our headquarters building, which is to be zoned commercial if property owners are not soon to be relieved of their holdings by the government as promised as far back as 1926.

8th Busy locally with the Fine Arts Commission and the National Capital Planning Commission and by telephone with A.PH.A. officers and others on plans and policies relating to expansion programs for consideration at the coming meeting of the Council.

14th An early start to New York this morning to attend a meeting of the National Health Council Board of Directors which had as its major topic for discussion the health careers pamphlet now in preparation. This pamphlet approaches the teenager's problem of identifying himself or herself with a career in the health professions from a refreshing point of view. It does not glamorize emoluments but it does stress the opportunity for service to fellowmen in various capacities including the practice of pharmacy.

15th Now meeting with a special committee of the American-Korean Foundation including Howard Rusk and Elmer Bobst to consider plans for a College of Pharmacy at Chung Ang University in Korea. Next by automobile to Easton, Pa., for conferences with our editorial and printing staffs on plans for the 1955 journals.

17th Today meeting with the Board of Canvassers including Lester Hayman, Bill Dixon and Harry Zeisig who faced the tremendous task of counting thousands of mail ballots cast in the election of officers of the A.PH.A. for 1955–56.

18th Now receiving the report submitted by the Board of Canvassers and issuing the bulletin announcing election of officers who will be installed at the Miami Beach Convention next May.

22nd Further discussions with Army officials on the pharmacy situation, which is gradually improving as places are being found in the medical department for drafted pharmacists in activities allied to pharmacy, where their training can be used to good advantage.

23rd A surprise call from Dean Jarrett of Creighton University, School of Pharmacy, who is visiting his son-in-law and daughter in Washington and looking over recently completed government buildings and incidentally the enlarged library facilities of the A.PH.A.

26th All but those who saved vacation time for the Christmas week are on the job and working feverishly to unpile the huge accumulation of mail which comes at the year's end.

28th Now conferring informally with the Korean Ambassador at his embassy office on health education and medical care services and supplies.

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Collector's CORNER

By George Griffenhagen

Ancient Formulary

Dr. S. N. Kramer, Curator of the Tablet Collection and Clark Research Professor of Assyriology, University of Pennsylvania, presents a review of a 4,000-year-old Sumerian clay tablet described as "the first Pharmacopoeia known thus far in the history of civilization." A translation of the tablet shows that drugs from the botanical, zoological and mineralogical kingdoms were all used in the materia medica of the Sumerians. Minerals included sodium chloride; animal products included snake skin and tortoise shell; botanicals included cassia, myrtle, asafedita and thyme. An exact replica of the tablet ($3^3/_4$ inches by $6^1/_4$ inches) is available from the University Museum, University of Pennsylvania, Philadelphia, Pa.

—*Kramer, Samuel Noah, "First Pharmacopoeia in Man's Recorded History," Amer. J. Pharm.,* **126,** *76 (1954).*

English Drug Jars

Agnes Lothian, librarian at the Pharmaceutical Society of Great Britain, presents a most interesting article tracing the use of bird designs on English drug jars. According to Miss Lothian, birds were first used as a decorative motif on English delftware about 1630. Until recently, the only dated "bird" jar known was a syrup pot in the British Museum, with the date 1714. However, Miss Lothian describes and illustrates an English delft posset pot dated 1631 and a set of 1672 dated jars, all carrying bird designs in their motif. The same issue of the *Chemist and Druggist* carries numerous articles of historical interest, including a pictorial story of the pharmaceutical exhibits at the Museum of the History of Science, Oxford, England, (p. 666), and the description of an interesting collection of chemists' labels (p. 670).

—*Lothian, Agnes, "Bird Designs on English Drug Jars," Chemist and Druggist,* **161,** *672 (1954).*

$1,500 Pharmacopoeia

Dr. Glenn Sonnedecker, secretary of the American Institute of the History of Pharmacy, announces the availability of a second-hand hospital formulary for as little as $1,500. The so-called *Lititz Pharmacopoeia,* unearthed by a New York antiquarian, appears to be the first copy on the market for decades—only four other known copies are extant. Dr. Sonnedecker describes this 1778 American pharmacopoeia, which was prepared for the military hospital of General Washington's Army, in a new *Bulletin* column entitled "Perspectives in Pharmacy." [Ed. Note: For any reader who would like a copy of the *Lititz Pharmacopoeia* but who may not have $1,500 handy, the AMERICAN PHARMACEUTICAL ASSOCIATION offers for sale a reproduction—the price, 15 cents.]

—*Sonnedecker, Glenn, "For sale, Copy of Hospital Formulary—$1,500," Bull. Amer. Soc. Hosp. Pharm.,* **11,** *193 (1954).*

Amsterdam Collection

Dr. Wittop Koning, curator of the Historical Medical-Pharmaceutical Museum in Amsterdam, describes (and illustrates in color) examples from the pharmaceutical collections. The Museum is particularly noted for its large collection of delftware pharmacy jars.

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A.Ph.A. Women's Auxiliary

NOW THAT the holiday season is over we can once more settle down and get to work. Those of us who attended the meeting in Boston have added some very pleasant memories to our record books. We could write pages about all our activities there, the exceptional entertainment provided for the ladies by the local committee and the hospitality of the people of historic Boston. The Convention was one we will long remember.

Mrs. Schaefer

And, while we are speaking about the wonderful time we had in Boston, here is a thought: We've never had an opportunity to show our appreciation to our hostess city. You all know that the steeple of the Old North Church was toppled by Hurricane Carol. Paul Revere and the signal lanterns in the Old North Church were all part of our early American beginnings. I have been thinking that many of us who enjoyed our stay in Boston would like to do something. Possibly, it would be nice for those of us who were there to respond to the appeal made toward restoring this fine old landmark.

Recently I had an opportunity to visit the American Institute of Pharmacy in Washington, D. C. Dr. Fischelis, the busy secretary, spent quite some time discussing with our committee, possible changes in the Ladies' Lounge. Often, important visitors are accompanied by their wives who have on occasion visited the lounge. We would like to refurnish it so that it will be more in accord with our beautiful building. That is our project for the year.

Please remember that our fiscal year is a very short one. We only had nine months in which to do some work and soon we'll be meeting in Miami Beach. From Boston to Miami—quite a contrast and a chance for new experiences. You will be more than repaid for your attendance, meeting old friends, making new acquaintances, seeing the wonderful resort and a good time. Make attendance at the 1955 A.PH.A. meeting a *must* in your schedule.

During our business meeting of the Auxiliary in Boston a revised Constitution and By-Laws were adopted and new officers were elected. The new officers for the coming year are as follows:

Honorary President—Dr. B. Olive Cole, Baltimore, Md.

President—Mrs. Hugo H. Schaefer, Yonkers, N. Y.

First Vice-President—Mrs. L. D. Hiner, Salt Lake City, Utah

Second Vice-President—Mrs. L. L. Riggs, Portland, Ore.

Secretary—Mrs. Henry M. Burlage, Austin, Tex.

Treasurer—Mrs. Newell Stewart, New York, N. Y.

Parliamentarian—Mrs. Andrew G. Du Mez, Baltimore, Md.

District Chairmen:

First—Mrs. M. G. Brudno, Newton Center, Mass.

Second—Mrs. Bernard J. Carey, Syracuse, N. Y.

Third—Mrs. William A. Prout, Charleston, S. C.

Fourth—Mrs. George L. Webster, Wilamette, Ill.

Fifth—Mrs. Louis C. Zopf, Iowa City, Iowa

Sixth—Mrs. Frank G. Rieger, Baton Rouge, La.

Seventh—Mrs. Elmer Plein, Seattle, Wash.

Eighth—Mrs. Charles Nielsen, Tucson, Ariz.

At this time, your President urges you to send in your dues. By now you have received your notices from the Treasurer. According to the new Constitution and By-Laws, members who fail to pay their dues for two consecutive years may be dropped from the membership roll. The Auxiliary is a very fine organization and you should keep up your membership even though you may not be able to attend the annual meetings. —Mrs. Hugo H. Schaefer, *President*

Straight from Headquarters

(*from page 19*)

Health and the State of the Union

IN HIS State of the Union Message delivered to the Congress of the United States on January 6, President Eisenhower devoted considerable attention to the subject of medical care for the American people. He referred especially to the high and ever rising costs of medical care, and to the gap in a complete medical service for all of the American people.

He rejected the thought of meeting the needs for improved medical care by any system of socialized medicine.

On the other hand, he indicated that voluntary health insurance programs require supplemental assistance from the Federal Government by supplying aid to the states in this field.

He indicated that in a message on this subject to be presented to the Congress on or about January 24, he would recommend a plan of federal health reinsurance service to supplement voluntary health insurance programs, as well as plans which would aid the construction of more adequate health facilities meeting the shortage of personnel in the medical service field.

He also indicated that in a later message to the Congress he would have some suggestions with regard to improving the enforcement of food and drug regulations.

The President expressed concern over the rise in narcotic drug addiction in the United States, and certain laxities in the international control of narcotic drug distribution.

He specifically recommended an increase in the minimum wage and inclusion of more people under the provisions of the minimum wage law.

U. S. P. Trustees Elect Beal

ANNOUNCEMENT that Dr. George D. Beal has been named to succeed the late Carson P. Frailey on the Board of Trustees of the Pharmacopoeia of the United States, calls to mind the long and distinguished service given to the U. S. Pharmacopoeia, among many other services, by Dr. James H. Beal, father of George. Dr. James H. Beal served as president and general secretary and on many committees of the A.PH.A. He was also the first editor of the *Journal of the American Pharmaceutical Association.*

He was chairman of the U. S. P. Board of Trustees for many years.

It is not often that the worthy son of a distinguished father follows his footsteps in American pharmacy as closely as has been the case with Dr. George D. Beal.

A distinguished chemist, research director, author, teacher, and administrator, Dr. George Beal is one of the best known figures in American pharmacy. He has, without doubt, contributed to as many individual and distinctive types of service in American pharmacy as any living pharmacist.

In this regard, he also follows in the footsteps of his distinguished father. At present, he is president of the American Council on Pharmaceutical Education, and he steps into the trusteeship of the Pharmacopoeia from the U. S. P. Revision Committee, on which he has served since 1930 as chairman of the Subcommittee on Organic Chemistry, and more recently on Cyclic Compounds.

As director of research at the Mellon Institute in Pittsburgh since 1926, he has supervised important industrial and research fellowships. He received the Ebert prize in 1920, and the Remington medal in 1941, the latter of which honors had been conferred upon his father also. He is a past-president of the A.PH.A., and has served for many years as a member of the Council.

We congratulate the U. S. P. Board of Trustees in having acquired a most able member.

Roy L. Sanford

THE UNTIMELY death of Roy L. Sanford, member of the Council and former vice-president of the AMERICAN PHARMACEUTICAL ASSOCIATION, on November 27, 1954, removes from our midst a pharmacist who was truly in love with his calling. He was a living demonstration of the fact that hard work, continuous application to the principles of altruistic service in the field of medical care, and an abiding interest in his fellow-man, constitute important attributes for success in pharmacy.

At the time of his death, he and his partners conducted five pharmacies in Enid, Oklahoma.

The Council of the A.PH.A., the citizens of Enid, Oklahoma, and the pharmacists of Oklahoma as well as the governing body of the A.PH.A., have lost an able, faithful and distinguished co-worker.

New A.Ph.A. Members

CALIFORNIA

Herby, Mathilde S., Oakland
Janney, Cornelius M., Fresno

FLORIDA

Blake, James Y., Plant City
Ochetell, Aaron, Miami
Smithline, Sydney, Miami Beach
Waxman, Walter, Miami Beach
White, Eneida R., Miami
Zimand, Philip, Miami Beach

ILLINOIS

Spurr, Charles S., Jr., Chanute A. F. Base

INDIANA

Ambroz, Walden F., Indianapolis
Blackburn, Dale W., West Lafayette
Derbyshire, Chase, Princeton
Gilbert, George R., Indianapolis
Jacobs, Joan, New Albany
McKay, Karl F., Indianapolis

LOUISIANA

Hodges, R. B., Jena

MICHIGAN

Booth, Philip A., Ypsilanti

MINNESOTA

Shink, Joe, Maples
Stapel, Forrest H., St. Paul

MISSOURI

Chura, George R., St. Louis
Simer, Ernest F., Kennett
Sterbini, Dea Rita, Joplin

NEW JERSEY

Koff, Arnold, West Orange

NEW YORK

Barley, Russell M., Westbury, L. I.
Brousseau, Armand C., Rensselaer
Cass, Simon D., Woodside
Eagle, Maurice, Brooklyn
Luongo, Frank C., Buffalo
McCann, Derwent W., Hornell
Sahagian, Paul, Albany
Winship, Robert C., Springville

NORTH CAROLINA

Bennett, Kelly E., Bryson City

OHIO

McClelland, Alfred W., Cleveland
Palko, Norman F., Lorain
Renner, Lawrence W., Canton
Weiner, Jean Helen, Canton

OREGON

Engle, Jimmie E., Albany

PENNSYLVANIA

Dabney, Maurice B., Philadelphia
McKinstry, R. Douglas, Altoona
Porter, John M., Philadelphia
Taliaferro, Lawrence R., Coatesville

TEXAS

Farrar, Raymond W., Houston

WASHINGTON

Burton, Henry J., Seattle
Henderson, David G., Seattle
Johnson, E. E., Seattle
Payne, James T., Seattle

CANADA

Charlesworth, Reginald C., Montreal, Quebec

Deceased Members

Bialk, Bernard A., Tucson, Ariz., Dec. 1, 1954 (Life Member)
Brittain, William L. B., Cincinnati, Ohio, Mar. 15, 1954
Delaney, Chris J., Philadelphia, Pa., Aug. 12, 1954
Discher, Donald, Columbus, Ohio, Sept. 9, 1954
Doiwa, Paul, Baltimore, Md., Aug. 6, 1954
Dudrow, Ralph C., Hyattsville, Md., Nov. 17, 1954
Fortun, Roy A., Whitehall, Wis., May 5, 1954
Murray, Raymond F., Foxboro, Wis., Oct. 25, 1954
Nove, Marvin, Anamosa, Iowa, Nov. 17, 1954 (Life Member)
Wurdack, John Herman, Pittsburgh, Pa., Dec. 8, 1954 (Life Member)

Maintaining Sterility In Ophthalmic Solutions

A study on the effectiveness of some antibacterial agents against *Pseudomonas pyocyanea* (*Ps. aeruginosa*) in ophthalmic solutions of sodium fluorescein (2%), atropine sulfate (0.5%), and eserine salicylate (0.25%) is reported by M. Klein, E. G. Millwood and W. W. Walther in *J. Pharm. and Pharmacol.*, **6,** 725 (Oct. 1954).

The investigators state that chlorocresol 0.1% and the *p*-hydroxybenzoate esters in 0.16% solution cause some burning sensation in the eye; that chlorobutanol and phenylethyl alcohol have a slight anesthetic effect which is of some advantage; and that the mercurial preparations are used in such dilution that no stinging or burning is caused and sensitization to mercury is extremely rare.

They note that quaternary ammonium compounds, although bactericidal, are not recommended because of their effect on the cornea. They summarize their findings as follows: "The mercurial compounds—thiomersalate (thimerosal) 0.005% and phenylmercuric acetate and nitrate 0.005%, are safe, and are recommended for eserine and sodium fluorescein, which are the most liable to *pyocyanea* contamination, also for methylcellulose eye-drops, which are liable to contamination by molds.

"These compounds are not only powerful bactericides but are also fungicides. Chlorobutanol in saturated solution (about 0.8%) is safe and recommended, but owing to the fact that the solution cannot be heated without detriment to the preservative its use needs great care. Chlorocresol 0.1% is safe, but in that concentration it causes smarting, and 0.03% kills *pyocyanea* within 24 hours.

"The *p*-hydroxybenzoates in 0.1% solution are reliable for most of the eye-drops used except fluorescein. Phenylethyl alcohol is safe in 0.5% concentration but much quicker in its action at 0.6%, and further clinical trials are needed with this promising preservative. For cortisone eye-drops 0.9% of benzyl alcohol, the one used in the original solution, is recommended.

"Eye-drops used in hospital wards, outpatient departments and factory medical rooms, should be prepared with bactericidal preservatives, but for eye-drops used by individual patients, a bacteriostatic agent may be permissible. However, for reasons of safety and to make it as foolproof as possible a uniform procedure using a bactericidal preservative is recommended."

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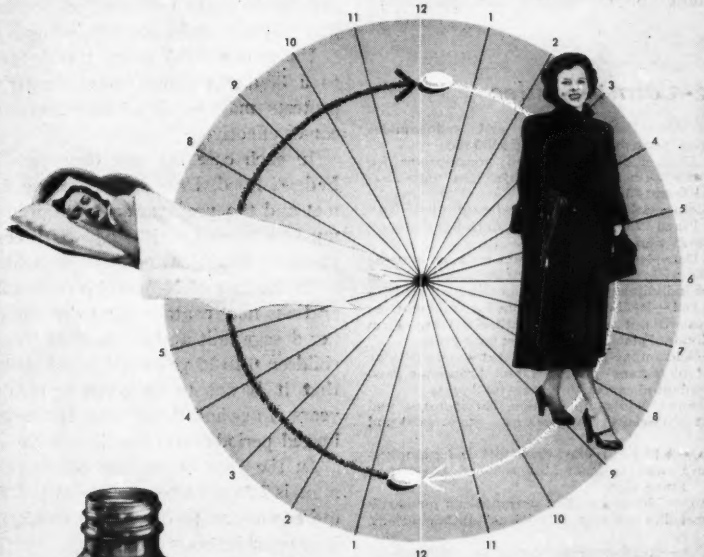
Donnatal Extended Action Tablets



The same reliable spasmolytic action that has made Donnatal prescribed by more physicians than any other antispasmodic is now available in the new dosage form—*Extentabs**. Taken morning and night, they provide spasmolysis "'round-the-clock".

Donnatal Extentabs are the result of three years of research to perfect a completely effective and dependable extended action tablet. Each Extentab is constructed to release immediately the equivalent of one Donnatal Tablet, and then (gradually and uniformly, over a period of 8 to 10 hours) to release the equivalent of two additional Donnatal Tablets, thus providing a sustained therapeutic effect for 10 to 12 hours.

Every physician in your community who uses antispasmodic therapy is interested in the advantages offered by Donnatal Extentabs—"night-long" therapy without interrupting sleep, and "day-long" therapy from a single tablet. An extensive program of Robins promotion is making physicians thoroughly familiar with these advantages.

*Trade Mark

FORMULA:

Each Donnatal Extentab contains:

Hyoscyamine sulfate	0.3111 mg.
Atropine sulfate	0.0582 mg.
Hyoscine hydrobromide	0.0195 mg.
Phenobarbital (¼ gr.)	48.6 mg.

SUPPLY:

Bottles of 100 and 500.

A. H. ROBINS CO., INC. • Richmond 20, Virginia

Ethical Pharmaceuticals of Merit since 1878

FDA Criminal Actions

Two of six drug lots seized by FDA recently were charged to be labeled with false and misleading claims. The other four were allegedly of defective composition, FDA reports.

One of the defective composition lots consisted of eyedrops that were not sterile, FDA charges. But despite this instance. . . "cases of nonsterile drugs have been materially reduced in the past few years," say FDA officials. This has come about largely through the adoption of more rigid sterilization controls and development of new equipment for processing and packaging antibiotics.

Over-the-Counter Sales

Birmingham, Ala.—Sold penicillin and sulfonamides without physicians' prescriptions. Fined $500 each.

San Diego, Calif.—Sold and refilled prescriptions for amphetamines and hormones without physicians' authorizations. Fined $400 and $300 each.

Westcreek, Colo.—Sold barbiturates without physicians' prescriptions. Fined $2,000, given a 10-month jail sentence, and placed on probation for 3 years.

Wilmington, Del.—Refilled prescriptions for amphetamine and barbiturates without physicians' authorizations. Firm fined $400; each individual placed on probation for 2 years.

Wilmington, Del.—Refilled prescriptions for amphetamine and barbiturates without physicians' authorizations. Firm fined $400; individual placed on probation for 2 years.

Griffin, Ga.—Sold amphetamine, barbiturates and cortisone acetate without physicians' prescriptions. Proprietor fined $250; each defendant placed on probation for 2 years.

Burlington, Iowa—Sold amphetamine, barbiturates, and thyroid without physicians' prescriptions. Fined $400 and court costs.

Boston, Mass.—Sold and refilled prescriptions for amphetamine, hormones, and sulfonamides without physicians' authorizations. Fined $100.

Anderson, Mo.—Sold and refilled prescriptions for barbiturates and penicillin without physicians' authorizations. Fined $500.

Camden, N. J.—Refilled prescriptions for barbiturates and cortisone acetate without physicians' authorizations. Fined $250 and placed on probation for 3 years.

New York, N. Y.—Sold barbiturates and sulfonamides without physicians' prescriptions. Fined $100 each.

New York, N. Y.—Sold and refilled prescriptions for amphetamine without physicians' authorizations. Fined $100 each. (Terminated in October but not previously reported.)

Scarsdale, N. Y.—Refilled prescriptions for barbiturates and sulfonamides without physicians' authorizations. Proprietor fined $100, employee, $25.

Minot, N. Dak.—Sold sulfonamides without physicians' prescriptions. Fined $300.

Floral Park, N. Y.—Sold Testo-Glan Male Formula and Fem-Tone Female Formula misbranded by false and misleading therapeutic claims for the effective treatment of sexual weakness, nervousness, mental depression, headache, sleeplessness, and vague aches and pains. Fined $1,000 for sales of the products, and $500 for violation of an injunction action to restrain shipment of the products.

Injunction

Barrows Chemical Co., Inc.; Unitone Corp.; and Joseph Barrows, New York—Prohibited from shipping B-Amino Complex tablets, B-Amino BAC-Complex tablets, and Unitone tablets, misbranded by false and misleading statements in accompanying literature that the product will check or cure, or be an adequate and effective treatment for deafness or hard of hearing; that the product is a food supplement which will supply an important quantity of protein when used as directed, and is needed to activate the entire body; that it will supply correct amounts of vitamins, proteins, and minerals to stimulate the body to work as nature intended; endow the user with vibrant life, health, and energy; enable the liver to convert more than normal amounts of carbohydrates into energy; supply increased energy to important organs; supply missing enzymes necessary to carry on growth, reproduction, secretion, nerve conduction, and muscular contraction; transfer fatigue to quick energy; prevent and correct disfunction in the energy conversion chemistry of body functioning; reactivate all enzyme systems necessary for healthy body functioning; and activate the body cells to function as nature intended.

Two Drugs Facing FDA Reclassification

Federal Register of Jan. 22 lists two analgesics as earmarked for over-the-counter sales, making the drugs the first to undergo reclassification under new Federal Food, Drug and Cosmetic Act regulations pursuant to the Durham-Humphrey Amendment.

Drugs to be removed from the prescription category are *APAP* (N-acetyl-*p*-aminophenol) and sodium gentisate. *APAP* was first brought out by E. R. Squibb & Sons as an ingredient in Trigesic tablets, according to FDA officials. Among the early producers of sodium gentisate was Suitland and Case Inc., officials reported.

Under new FDA rules, the drugs are subject to a 30-day waiting period during which time protests may be filed before reclassification becomes effective.

In each case the new drug provisions of the Federal Food, Drug and Cosmetic Act must be met and the preparations containing the drugs must be labeled with adequate directions for use in minor conditions as a simple analgesic.

In the case of N-Acetyl-*p*-Aminophenol, preparations may contain not more than five grains per dosage unit and one-half of this amount for children 6 to 12 years of age. Labels must warn that it is not to be given to children under 6 years of age and that it must not be used for prolonged periods except as directed by a physician.

In the case of sodium gentisate, the maximum is 7.7 grains per dosage unit. The same requirements as to dosage for children and warnings must be observed.

Antibiotic Ban Lifted

All antibiotic drug preparations released for over-the-counter sale by the Federal Food and Drug Administration may now be sold legally in New York City without prescription, according to the New York Board of Trade.

The action, urged for years by the trade board's Drug, Chemical and Allied Trades Section, came after New York's Board of Health amended the city's sanitary code prohibiting such sales.

Radioactive Vitamin Used in Anemia Study

A report in Vol. 30, No. 10 of the University of California *Clip Sheet* reflects that a radioactive vitamin is being used by doctors at the Los Angeles Veterans Administration Center and the University of California at Los Angeles Medical School to learn more about why certain people become unable to manufacture red blood cells normally.

This is vitamin B_{12}, known to be essential in the blood building process. However, without the aid of some body substance, known as the intrinsic factor, B_{12} is not utilized, resulting in pernicious anemia. The nature and source of the factor has been a mystery.

Because intestinal bacteria also produced B_{12}, it has been difficult to trace experimentally administered B_{12}. However, with the use of the radioactive form, which can be traced with radiation detecting instruments, the stomach has been fairly well established as the source of the intrinsic factor.

When the radiovitamin was administered to persons whose stomachs had been removed because of cancer, it was found that none was absorbed. But with the simultaneous administration of juices secreted by stomachs of healthy persons the B_{12} was absorbed normally.

Actually, it only takes a millionth of a gram of B_{12} daily to maintain normal blood building activity. But without aid of some substance in stomach secretions the vitamin apparently cannot negotiate the small fraction of a millimeter across the intestinal lining to the blood stream.

Grey to Washington

Shelbey T. Grey, district chief of the Food and Drug Administration at Chicago, has been appointed chief of FDA's Division of Program Research at Washington, according to George P. Larrick, commissioner of Food and Drugs, U. S. Department of Health, Education, and Welfare. Mr. Grey succeeds Robert S. Roe, recently named associate commissioner.

972 Grants Approved

Dr. Leonard A. Scheele, surgeon general of the Public Health Service, U. S. Department of Health, Education, and Welfare, announce approval of federal grants for 972 medical research projects, totaling $10,275,533, for basic and applied research in major diseases.

Center Cites Gains In Fighting Cancer

The following 10 major gains in the fight on cancer during the past two years are cited in the 1952 to 1954 biennial report of Memorial Center for Cancer and Allied Diseases with its research unit, the Sloan-Kettering Institute, New York, Science Service reports.

1. The sustained growth, for the first time, of human cancers in laboratory animals.
2. An improvement from six to 39.5 per cent in cure rates for soft tissue sarcomas over the past 20 years.
3. The synthesis by the Wellcome Research Laboratories of 6-mercaptopurine, a chemical which appears from tests at Memorial to be one of the most effective in restraining acute leukemia.
4. An increase through the years from 10 to 75 per cent in the number of patients with cancer of the stomach who can be treated surgically.
5. The establishment of circumcision of male infants as a practical means for partial prevention of cervical cancer in women.
6. Improvement in techniques of surgery of the liver permitting removal of cancer in this vital organ in some cases.
7. The development of effective treatment for formerly uncontrollable small blood-vessel tumors (hemorrhagic telangiectasia).
8. The adaptation of a virus to destroy, rapidly and completely, human cancer cells of one type in the test tube.
9. The definition of two types of breast cancer requiring different treatment.
10. The discovery that cortisone as well as sex hormones will temporarily control some advanced breast cancer.

Deaths at Record Low In '54, Expert Says

The lowest death rate in the history of the country and the largest annual number of births were forecast for 1954 by Dr. Leonard A. Scheele, surgeon general of the Public Health Service of the U. S. Department of Health, Education, and Welfare. Dr. Scheele made his statement on the basis of vital statistics reports for the first 10 months of the year.

The death rate for the year is expected to close at 9.2 deaths per 1,000 population, a substantial drop from the rates of 9.6 or 9.7 which have prevailed over the past five years. Infant and maternal deaths were also expected to hit new lows.

because the new coating dissolves this fast...

Strip of timed photographs shows action of new *Filmtab* **ERYTHROCIN** Stearate in human gastric juice. Within 30 seconds, the *Filmtab* coating actually starts to dissolve. And within 45 minutes the tablet is completely disintegrated. Because of this swift disintegration, **ERYTHROCIN** Stearate is absorbed sooner, gives your patients blood levels earlier than enteric-coated erythromycin.

your patients get high blood levels in 2 hours or less

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Erythrocin® STEARATE

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disintegrates faster than enteric-coated erythromycin

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Erythrocin . . . *for faster absorption*

New tissue-thin *Filmtab* coating (marketed only by Abbott) starts to disintegrate within 30 seconds—makes ERYTHROCIN Stearate available for immediate absorption. Tests show Stearate form definitely protects drug from stomach acids.

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Erythrocin . . . *for earlier blood levels*

because there's no delay from an enteric coating, patients get high, inhibitory blood levels of ERYTHROCIN *in less than 2 hours*—instead of 4-6 as before. Peak concentration is reached at 4 hours, with significant levels for 8 hours.

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Erythrocin . . . *for your patients*

Filmtab ERYTHROCIN Stearate is highly effective against coccic infections . . . and especially useful when the infecting coccus is resistant to other antibiotics. Low in toxicity—*it's less likely to alter normal intestinal flora than most other oral antibiotics.* Conveniently sized (100 and 200 mg.) in bottles of 25 and 100. Abbott

**TM for Abbott's film sealed tablets, pat. applied for.*

413231

•"This is the ad your physicians are seeing on the new Filmtab ERYTHROCIN."

LOCAL BRANCHES

Considering the role of the pharmacist on the public health team were a dozen widely known pharmacists at a one-day January seminar sponsored by the **Philadelphia** Branch of A.PH.A.

Among the speakers at the Philadelphia session were C. F. Buck of Indianapolis, Alfred Burger of the University of Virginia, Andrew B. Anderson of Darby, Pa., Fred Lascoff of New York and L. E. F. Minnich of York, Pa.

At their January meeting, members of the **New York** Branch heard Dr. Raymond B. Griffiths discuss "The Pharmacological Action of Rauwolfia Products" at Fordham University.

George Henrikson, president of the **Puget Sound** Branch, introduced seven new members at a recent meeting of the Tacoma area unit. Guest speaker was Dr. C. G. Stipp, who spoke on "Gynecological and Obstetrical Endocrinology."

New officers of the **Oregon** Branch include Tom R. Ogle, president; W. Don Fowler, vice president; E. G. Morris, secretary; Harland Belscamper, treasurer, and L. L. Riggs, sergeant-at-arms.

Robert M. Leonard is the new president of the **Washington, D. C.,** Branch. Serving with him through 1955 are Frank D. Cooper, first vice president; George B. Hutchinson, second vice president; Lt. Col. C. S. Marchek, secretary, and George B. Griffenhagen, treasurer.

Miami Branch members recently saw a color movie on Dextran, sponsored by Baxter Co. At the same session a Dade County (Fla.) Civil Defense Spokesman, Major S. K. Bronstein, outlined hospital plans for atomic war emergencies.

Some 150 members of the **Michigan** Branch and the Michigan Academy of Pharmacy heard Dr. William L. Simpson, scientific director of Detroit Institute of Cancer Research, speak on "Cigarettes—Cancer in Mice and Men."

STUDENT BRANCHES

In an address before **Brooklyn College of Pharmacy** Student Branch members, Edward Neimeth, president of National Magnesia Co., maintained the influx of supermarkets will strengthen pharmacy as a profession . . . . Student Branch officers at **St. Louis College of Pharmacy and Allied Sciences** discussed "The A.PH.A. and Pharmacy" at a year-end meeting. Leading the discussion were Walter Ito, Ronald Hanlen, Donald Barr and Kenneth Unnerstall.

University of Kentucky Student Branch lists its new officers as Charles G. Mills, Jr., president; George Thomas Reynolds, vice president; Allen Waters, secretary-treasurer, and Bruce Thompson, sergeant-at-arms. . . . Dr. W. H. Camp of **University of Connecticut** faculty, speaking before Student Branch members at Storrs, Conn., outlined a recent trip he made to Africa. A panel discussion of the internship system is a tentative topic for the unit's February meeting.

James Wilson of the **University of Houston** Student Branch heads a branch committee investigating opportunities to aid a local polio clinic. . . ."Retail Pharmacy" was the topic of F. Royce Franzoni in a recent talk before Student Branch members of **George Washington University. . . .University of Kansas** Student Branch viewed a 45-minute film on epilepsy. . . .W. Latham West, president of North Carolina Pharmaceutical Assn., advanced four points of service to put pharmacy on a stronger professional footing in a talk before the **University of North Carolina** Student Branch.

Steps a pharmaceutical manufacturer takes before putting a new product on the market were outlined recently to the **Rutgers University** Student Branch of A.PH.A. The speaker was Paul C. Wieseman, chief pharmacist of Norwich Pharmacal Co.

Five members of **Idaho State College's** Student Branch were recipients of scholarships awarded by the American Foundation of Pharmaceutical Education. They are Clarence Tanaka and Robert Wilson, both seniors, and Earl Wong, Louis Sete and Thomas Purdue, all juniors. Prize-winners at the Branch's annual Pharmacy Ball included Miss Frances Herre and Mr. Purdue. . . . Drake University members are exploring a variety of membership-building devices in a program aimed at increasing membership to 100 per cent of the school . . . .

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for
28 years!

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Each fluidounce contains:

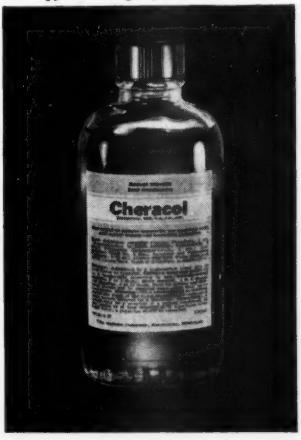
Codeine phosphate . . . . . 1 gr.
Chloroform . . . . . 2 grs.
Potassium guaiacolsulfonate 8 grs.
Ammonium chloride . . . . . 8 grs.
Antimony and potassium tartrate . . . . . 1/12 gr.
Alcohol 3%
With white pine and wild cherry bark

Supplied:

Bottles of 2 and 4 fl. ozs., pint, and gallon

*Trademark, Reg. U. S. Pat. Off.

The Upjohn Company, Kalamazoo, Mich.



Washington State College Student Branch members recently saw the educational film, "H—The Story of a Teenage Addict". . . . Outlining activities of the Massachusetts State Food & Drug Administration to **New England College** Student Branch members was George Michael, state Food & Drug chairman. . . . Highlighting a year-end party sponsored by the **University of Florida** Student Branch was the presentation of a $300 Borden Scholarship to James Y. Blake, Jr. The award goes annually to the outstanding senior pharmacy student.

Massachusetts College of Pharmacy Student Branch recently heard Dr. Rudolph Blythe of Smith, Kline & French. His topic was pharmaceutical research. . . ."History of Your Prescription," an E. R. Squibb & Sons production, was shown **University of Colorado** Student Branch. More than 250 persons attended the unit's annual dinner-dance. . . .The Christmas party of the **South Dakota State College** Branch received enough donations to send four CARE packages to needy overseas families. These were made in lieu of the usual gift exchange.

Common errors in licensing examination papers were discussed before the **Fordham University** Branch by the president of New York State's Board of Pharmacy, Dr. Boris Liebmann. New Branch officers are Bernard Mehl, president; Gerald Sugarman, vice president; Philip Meshberg, treasurer, and Frieda Hess, secretary. . . .ARB (any reliable brand) came in for thorough discussion at the **Philadelphia College of Pharmacy** Branch, with members of the Student Branch serving as panelists and Dr. Barr, faculty advisor, as moderator.

Student interest in hospital pharmacy was encouraged by Mrs. Jane Rogan, chief pharmacist at Deaconess Hospital. **Wayne University** Branch members heard her stress the opportunities available in the under 100-bed hospitals. . . . . A full schedule at the **Ohio Northern University** Student Branch December meeting included the subjects "What Becomes of the Dollar Spent in a Drug Store" and "The Responsibilities of a Pharmacist."

Dominick Forlizzo, past president of the Italian Pharmaceutical Association, and Milton Lupow, McKesson & Robbins sales manager, talked before the annual winter meeting of **St. John's University** Student Branch. Pharmacy students presented the College with seven torsion prescription balances. . . .**Detroit Institute of Technology** reports the following newly elected Student Branch officers: President, Bruce Diehr; Vice President, Laureano Leone, and Treasurer, James Totsky. Bernice Zuchlewski was re-elected secretary.

More new officers . . . .**University of Minnesota** Student Branch lists Theodore Rowell, Jr. as president; Delano Nelson, vice president; Harry Iverson, secretary, and Ross Butenhoff, treasurer. **Purdue University** Branch reports that A. Elaine Jackson is now its secretary.

Chief topic at the November 10 meeting of the **University of Wyoming College of Pharmacy** Branch was the all-school membership drive scheduled for November 12. Shirley Jeffries also reported on the feasibility of establishing a roster at the College honoring the women in pharmacy.

Prizewinning float in the annual Homecoming Parade staged by the **University of Utah** was that of the **College of Pharmacy** Branch. Decorated in red and white, it featured a huge mortar and pestle, and the letters "A.PH.A." served as an attractive background to a pharmacy student dressed as an Indian princess.

The **Loyola University of the South College of Pharmacy** Branch reports a 100 per cent membership enrollment. Plans are going forward successfully for a pharmacy journal to be published by the Branch. Now that Pharmacy Week activities with its several radio broadcasts and displays are concluded, the Branch is preparing a drive to publicize the Historical Museum of Pharmacy in New Orleans.

There are two changes only in the reported roster of officers of the **Southwestern State College School of Pharmacy** Branch; the new secretary is Mary Ann Hunt, and the newly named historian is James Radley.

Joan Evenstad, recently elected secretary-treasurer of the **North Dakota Agricultural College School of Pharmacy** Branch, reports her election, along with the election of Kenneth Borg, president, and James Rumpca, vice-president.

The **University of Cincinnati College of Pharmacy** Branch reports that the following have been elected to office; President, Ronald J. Brenner; Vice-President, William Plyburn; Secretary, May Lou Reulmann; Treasurer, David Hill.

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Milestones

Associations

Dr. M. L. Tainter, director of the Sterling-Winthrop Research Institute, has been elected president of the **New York Academy of Science** for a one-year term ending December 1955. The Academy, now in its 137th year, claims to be the nation's fourth oldest scientific society.

Wilbur E. Powers was elected Secretary of the **National Pharmaceutical Council, Inc.,** at a recent meeting of the board of directors of the Council. . . . At a recent session of the **American College of Pharmacists** in Los Angeles, Frank C. McIntyre, public relations director for **California Teachers Assn.,** discussed the public relations problems of the professional pharmacist.

Highlighting the 121st annual meeting of the **American Association for the Advancement of Science** held at the University of California, Berkeley, was an International Conference on Animal Venoms which attracted herpetologists, pharmacologists, and other scientists throughout the world. . . . Dr. George M. Hocking, professor of Pharmacognosy, Alabama Polytechnic Institute, Auburn, Ala., has recently been named a member on the subcommittee on medicinal plants of the **Pacific Science Association.**

Colleges

Rutgers University College of Pharmacy fraternity and sorority pledges this year are giving "help" at local hospitals instead of taking the "hell" of hazing. Some 39 pledges from four fraternities and one sorority at the New Jersey State University pharmacy unit here devoted a day of their Christmas holiday vacation to work at St. Michael's, the Crippled Children's, and Beth Israel hospitals in Newark as assistants to staff members. Another four students helped a professor at the College in a special project as part of the emphasis on constructive activity as a qualification for membership in fraternities.

The *Pill-Ettes,* Women's Auxiliary of the **Arizona Pharmaceutical Association,** has established two scholarships of $150 each at the University of Arizona College of Pharmacy. The awards are limited to state residents who have taken pre-pharmacy training in Arizona. . . . **College of Pharmacy of St. John's University** has added two new faculty members, Dr. Henry Eisen and Dr. Alfred E. Livingston.

Newly elected class officers in the **College of Pharmacy at the University of Texas** are: Seniors—Robert L. Rieger, president; Donald O. Ferguson, vice-president; and Robert F. Parker, Jr., secretary-treasurer. Juniors—Langford H. Sneed, president; Joe N. Carroll, vice-president; and Beverly A. Williams, secretary-treasurer.

The Upjohn Company has announced grants totaling **$3,500** to **Vanderbilt University** and **Michigan State College.** The Vanderbilt grant, amounting to $2,500, will be used for a graduate fellowship in pharmacology. The Michigan State grant will go toward continuing a grant-in-aid for the study of bovine mastitis . . . . Dr. Niels C. Klendshoj, co-isolator of the B specific blood substance in 1941, has been appointed clinical professor of toxicology, Department of Legal Medicine, at the **University of Buffalo School of Medicine.**

Creighton University College of Pharmacy juniors and seniors visited Indianapolis and the Eli Lilly Company during the week of November 15. Accompanying the students were Frances Rogers, '21, chief pharmacist at Clarkson Hospital; Sebastian Pirruccello, professor and director of Clinic Pharmacy of the College; and John Scully, acting director of the Department of Pharmaceutical Chemistry. All told, 65 made the trip.

Six students were recently initiated into Rho Chi at the College. The initiates included Rose Marie and Betty Jane Jellison, Leon Roeser, William Gouger, Roland B. Reznicek, and Larry A. Bernacchi.

Prof. Andrew Bartilucci, chairman of the Department of Pharmacy at **St. John's University's College of Pharmacy,** has been named to the newly created post of assistant dean of that school. Dr. Bartilucci, who has been a member of the faculty for the past two years, was formerly assistant to the Dean.

Manufacturers

In a year-end statement, Harry J. Loynd, president of **Parke, Davis & Company,** says, "Greatly intensified competition is likely in the pharmaceutical industry during 1955. Scientists everywhere are edging closer to the answers to heart attacks, cancer and other degenerative diseases. It is hoped that we will be in a position to offer a commercial polio vaccine sometime during 1955." He concludes: "Increased competition cannot help but benefit the general public as well as the industry."

Oscar M. Helmer, Ph.D., and Edmund C. Kornfeld, Ph.D., are new research associates of **Eli Lilly and Company.** Dr. Helmer's work with the etiology of hypertension led to the discovery of angiotonin, the postulated pressor substance which causes hypertension. Dr. Kornfeld is a member of the team of Lilly scientists who recently succeeded in synthesizing lysergic acid, a basic compound in the structure of ergot alkaloid which has broad uses in medicine.

William H. Rorer, Inc., plans to erect a building at Lansdale, Pa., to house offices, production facilities, research and control laboratories. . . . **Smith-Dorsey, Division of the Wander Company,** announces two promotions in the Sales Department: Paul Greenwald to the new position of field assistant to the sales manager, and Byron A. Dye, Kansas City division manager.

Dr. Loren M. Long is now director of chemical research for **Parke, Davis & Company. . . .Mallinckrodt Chemical Works** has named G. C. Bradshaw as director of sales research, Walter S. Keutzer, western division sales manager, and Warren F. Michener, assistant western division sales manager. . . .Richard C. Fenton has been elected vice president of **Pfizer Corporation,** foreign trade subsidiary of **Chas. Pfizer & Co., Inc.** Regional director for Europe since August, 1952, Mr. Fenton will continue to supervise Pfizer's pharmaceutical operations in that area.

S. P. Hurley has been named head of a new veterinary sales department established by the **Upjohn Company**. . . .Edward T. T. Williams, president of the **Lambert Company,** has received an honorary Doctor of Laws degree from Fairleigh Dickinson College, Rutherford, N. J., at exercises marking the 13th anniversary of the founding of the college. Mr. Williams has been chairman of the board of trustees.

In a major organizational move, the board of directors of **Merck & Co., Inc.,** has appointed two **Sharp & Dohme Division** executives to new top management posts: Henry W. Gadsden has been named vice president of Merck & Co., Inc., and John G. Bill, president and general manager of the Sharp & Dohme Division. . . .Passing another milestone is the medical journal **Therapeutic Notes,** which this year celebrates its 60th anniversary. **Parke, Davis & Company** sends the journal to approximately 175,000 physicians and allied professional people.

Wallace & Tiernan Incorporated recently purchased **Maltbie Laboratories, Inc.,** of Newark, N. J. Maltbie volume in the ethical drug field is presently about equal to that of Wallace & Tiernan, according to W & T. . . . **Upjohn Company** recently named four men to research positions, according to Dr. R. S. Schreiber, director of research. Appointments include Dr. James A. Fancher, Jr., Dr. E. J. Larson, Vernon F. Baker and Lloyd J. Sorenson.

Lars M. Roos has been named division traffic supervisor for **Lederle Laboratories Division, American Cyanamid Company. . . .** Dr. Marshall B. Guthrie has joined the clinical staff of the Research and Development Division of **Smith, Kline & French Laboratories.** Dr. Guthrie will also continue his association with the University of Pennsylvania. . . .Pierre S. du Pont, 3rd, succeeds Lammot du Pont Copeland as secretary of the **Du Pont Company.** Mr. Copeland has become a vice president and chairman of Finance.

Dr. Robert H. Denkewalter is the new director of process research and development of the Chemical Division of **Merck & Co., Inc. . . .** Walter R. Beardsley, president of **Miles Laboratories, Inc.,** of Elkart, Ind., announces the purchase of **Ernst Bischoff Company** of Ivoryton, Conn., manufacturers of biologicals and pharmaceuticals for almost 50 years. . . . Robert H. Hensel is now assistant regional manager for the metropolitan New York region of **Lederle Laboratories Division, American Cyanamid Company.** He replaces Joel R. Brown, recently appointed assistant domestic sales manager.

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Hospital Society Elects Busick

Claude L. Busick, chief pharmacist at St. Joseph's Hospital in Stockton, Calif., has been elected president of the American Society of Hospital Pharmacists for the 1955–1956 term. Mr. Busick is now serving as vice president of the society and is immediate past-president of the Northern California Society of Hospital Pharmacists.

Other officers-elect are vice president, Milton Skolaut, chief of the Pharmacy Department of the Clinical Center, National Institutes of Health in Bethesda, Md., and treasurer, Sister Mary Rebecca, chief pharmacist at St. Benedict's Hospital in Ogden, Utah. The new officers will be installed at the annual meeting which will be held in conjunction with the A.PH.A. Convention at Miami Beach during the week of May 1.

Mr. Busick

The ballots were counted by a committee of three ASHP members appointed by President George F. Archambault and the results submitted to Secretary Gloria Niemeyer. On the committee were Robert Capehart, president of the Maryland Association of Hospital Pharmacists, P.H.S. Medical Supply Depot, Perry Point, Md.; Franklin Cooper, George Washington Hospital, Washington, D. C., and Basil Ketcham, president of the Philadelphia Hospital Pharmacists' Association, V. A. Hospital, Philadelphia, Pa.

Philadelphia Seminar Slated March 29–31

A three-day seminar on modern pharmaceutical practice—open to all practicing pharmacists—will be held March 29–31 at the Philadelphia College of Pharmacy and Science.

The seminar, seventh in a series sponsored by the Philadelphia school, will include discussions on new immunizing agents, antibiotics, causes and treatment of cardiovascular diseases, radioisotopes in medicine and pharmacy, new drugs, sources of technical information and the economic future of pharmacy. Also the program is to offer a lab exercise in modern dispensing techniques.

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